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SUBJECT: ENVIRONMENTAL MONITORING RESULTS OF THE 2007 PHEROMONE AERIAL APPLICATIONS FOR THE LIGHT BROWN APPLE MOTH ERADICATION PROJECT

INTRODUCTION

The California Department of Food and Agriculture (CDFA) has initiated a project in several counties to eradicate a light brown apple moth (LBAM) infestation using synthetic pheromones. The project includes aerial applications of Check Mate OLR-F® and Check Mate LBAM-F® that were made under the direction of the Pest Detection/Emergency Projects Branch of CDFA in Monterey and Santa Cruz Counties. Three separate treatments were performed, on three to four nights for each treatment, between September 9 and November 12, 2007. The first and second treatments included the cities of Marina, Seaside, Monterey, and Pacific Grove, the third included areas of Salinas, Prunedale, Santa Cruz, Live Oak, Scotts Valley, Soquel, Capitola, and Aptos. The Department of Pesticide Regulation (DPR) and CDFA scientific staff monitored the deposition of the synthetic pheromone Check Mate OLR-F® for the first treatment, and Check Mate LBAM-F® for the second and third treatments.

The LBAM, *Epiphyas postvittana*, is a native lepidopteran of Australia and is considered an agricultural pest there. It has been detected in Hawaii but the recent detections in California are the first in the mainland of the U.S. The LBAM host list covers a wide range of crops and other plants, and includes over 1000 species and more than 250 crops. This pest destroys, stunts or deforms young seedlings; spoils the appearance of ornamental plants; and injures deciduous fruit-tree crops, citrus and grapes. Available on the U.S. Department of Agriculture's (USDA's) Web site at: <http://www.aphis.usda.gov/newsroom/content/2007/03/applemoth.html>.

The LBAM has been detected in 13 counties in California, mainly in the central coastal region. In counties where the detections were small and isolated, ground treatments of synthetic pheromones were initiated. Wide spread infestation and dense moth populations in Monterey and Santa Cruz Counties made ground treatment logistically and economically infeasible, CDFA and USDA decided that aerial application of the synthetic pheromone was necessary.

The active ingredients (a.i.s) of Check Mate OLR-F® are the synthetic pheromones (E)-11-tetradecen-1-yl acetate and (Z)-11- tetradecen-1-yl acetate. Check Mate LBAM-F® contains (E)-11-tetradecen-1-yl acetate and (E,E)-9,11-tetradecen-1-yl acetate. The mode of action of both pheromone products is mating disruption. The U.S. Environmental Protection Agency (U.S. EPA) has made the determination that lepidopteran pheromones, defined as unbranched aliphatic chains (9 to 18 carbon atoms) ending in an alcohol, aldehyde, or acetate functional group and containing up to 3 double bonds in the chain, are of sufficient toxicological similarity as to be considered one group. Due to low toxicity in animal testing and expected low exposures, lepidopteran pheromones are exempt from the requirement of a food tolerance. The maximum application rate is 20 grams (about 2/3 ounce) of a.i. per acre per application, and the maximum amount that can be applied per year is 150 grams (about 5 ounces) of a.i. per acre. The Check Mate products also contain several inert ingredients, but these were not monitored.

DESCRIPTION OF APPLICATION

The pesticide mixture was prepared at the Salinas Municipal Airport, Salinas, California. The concentrated pheromone product was mixed with water in 3,000-gallon polyethylene tanks prior to each night's application and pumps circulated the product to mix it before transfer to the aircraft. The applications were made with Beechcraft King Air® aircraft equipped with 250-gallon aluminum spray tanks and a 5-nozzle boom with a nominal swath width of 100 feet. The aircraft released the mixture at a minimum height of 500 feet above the ground at an air speed of approximately 170 miles per hour. The pesticide mixture was constantly circulated in the aircrafts spray tank during the application to keep the product well mixed.

The first treatment included portions of Marina, Seaside, Monterey, and Pacific Grove in Monterey County (Monterey Peninsula) and applications occurred on four nights from September 9 to 12, ending the morning of the 13th. Check Mate OLR-F® was applied at the rate of 2.92 fluid ounces of product with 29.08 fluid ounces of water per acre, which is equivalent to 20 grams a.i. per acre or 0.46 milligrams a.i. per square foot. Over 36,765 acres were treated with two aircraft. Approximately 7 weeks later, on the nights of October 24 through 26, a second treatment was made to the same areas with a different product, Check Mate LBAM-F® applied at the rate of 2.97 fluid ounces of product with 29.03 fluid ounces of water per acre, which is equivalent to 15 grams a.i. per acre or 0.344 milligrams a.i. per square foot. A third aircraft was added for this and the third treatment.

The third treatment included portions of Salinas, Prunedale, Santa Cruz, Live Oak, Scotts Valley, Soquel, Capitola, and Aptos and applications occurred on the nights of November 8, 9, and 11. Check Mate LBAM-F® was applied over 46,780 acres at the same rate as the second treatment.

MATERIALS AND METHODS

Contaminant Monitoring

The DPR and CDFA staff sampled the application mixing and loading equipment for contaminants prior to use. The water supply truck was sampled from the supply hose. Water was pumped through the three 3000-gallon polyethylene tanks, pumps and manifold and then pumped back into the third tank where samples were collected to test the mixing and loading equipment. The aircraft loading hose and PVC pipes connecting the mixing tanks to the loading hose were all new and therefore not tested. The Beechcraft King Air® application aircraft are equipped with 250-gallon aluminum spray tanks. The CDFA staff sampled the two aircraft used in the first treatment. For the second and third treatments, a third aircraft was added, and also sampled. All of the samples collected were composite samples of all of the nozzles used on the aircraft boom. All samples were collected in one-liter wide mouth glass jars with Teflon lined lids and placed immediately on wet or blue ice. Samples were transported and stored on wet or blue ice until relinquished to the CDFA's Center for Analytical Chemistry laboratory. Samples were analyzed for carbamate pesticides with high-performance liquid chromatograph with detection limits of 0.25 parts per million (ppm) and for other pesticides with a gas chromatograph with a mass spectrometer (GC/MS), using a spectral library to identify any peaks, with a detection limit of 0.50 ppm.

Application Tank Mixture Samples

Tank samples were collected each application night to calculate the pheromone concentration in the mixture. Each aircraft was sampled during each of the three treatments, although not every application night. During the first two treatments, the aircraft tank samples were collected from the spray boom. Due to difficulties with flushing the boom and safety concerns at the airport, the third treatment tank samples were collected directly from the aircraft's spray tank with a polyethylene siphon pump. All samples were collected in one-liter wide mouth glass jars with Teflon lined lids and placed immediately on wet or blue ice. Samples were transported and stored on wet or blue ice until relinquished to the CDFA's Center for Analytical Chemistry laboratory. Samples were analyzed for the pheromone a.i.'s using GC/MS or gas chromatograph with flame ionization detector.

Mass Deposition Monitoring

Mass deposition sheets were used to measure the amount of pheromone reaching the ground. Samples were collected at 61 sites during the 3 treatments.

Mass Deposition Sampling Site Selection

Sites were selected based on the following criteria: sites must be (1) located in open areas away from obstructions to reduce the interference with droplet deposition, (2) accessible throughout the night, and (3) located in a secure area where any disturbance of the samples would be unlikely. Of the 61 total sample locations 49 were within the application boundary and 12 were buffer area samples. Buffer area sites were located in nontreated areas along the edge of the treatment areas or around sensitive water bodies (Figures 1, 2, and 3).

For the first treatment, Monterey Peninsula, 18 treatment area sites and 2 buffer area sites were sampled. For the second treatment, also the Monterey Peninsula, 14 additional sample sites were added (# 22–35), nine in the treatment area and 5 in the buffer areas. For the third treatment, Santa Cruz, Prundale, and Salinas, 23 treatments area sites and 5 buffer area sites were sampled. Sample site PD26 is a sensitive water body site that is not in the treatment area or along the edge of the application boundary.

Mass Deposition Sheets

The mass deposition of pheromone reaching the ground was measured using one-square foot sheets consisting of an absorbent paper with a plastic backing. Each mass deposition sheet was placed on a large polyethylene-covered cardboard base secured to a cinder block. The sampling staff would consult with the treatment project staff to determine which deposition sites were likely to be in an application area for the night, and set out deposition cards accordingly. The deposition sheets were set out approximately two hours before the scheduled start of application and were collected the following morning, at least 30 minutes after the end of application. After collection, sampling staff would consult with the treatment project staff to determine which deposition sites were in the application area; only deposition sheets thought to be in application or the buffer areas were submitted for analysis.

The samples were transported on dry ice and kept frozen until relinquished to the CDFA's Center for Analytical Chemistry laboratory Samples were analyzed using a GC/MS, with a minimum detection limit of one microgram per sample (Appendix E).

Quality Control

Quality control for field sampling included collection of deposition sheets that were not set out, but were stored with the other mass deposition sheets both before and after sample collection. These "blank" samples were used to detect any inadvertent contamination. Quality control for laboratory analysis included the analysis of mass deposition sheets with a known amount of pheromones added to them. These "spiked" samples were used to determine the accuracy of the

laboratory analysis. Prior to sampling, spiked mass deposition sheets were stored in a freezer and analyzed periodically to determine the storage stability of the samples.

Figure 1. Monterey Sampling Site Locations

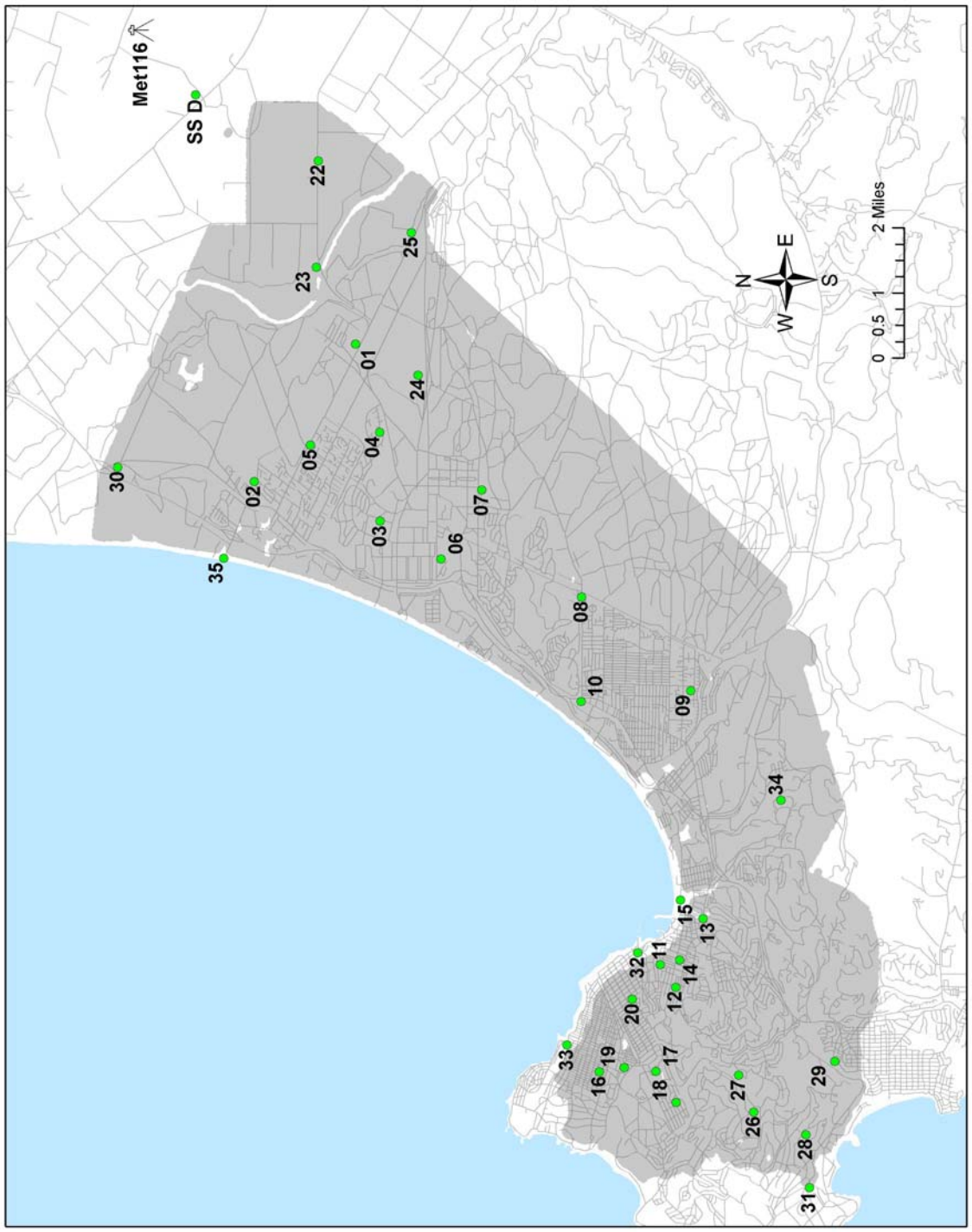


Figure 2. Prunedale/Salinas Sampling Site Locations

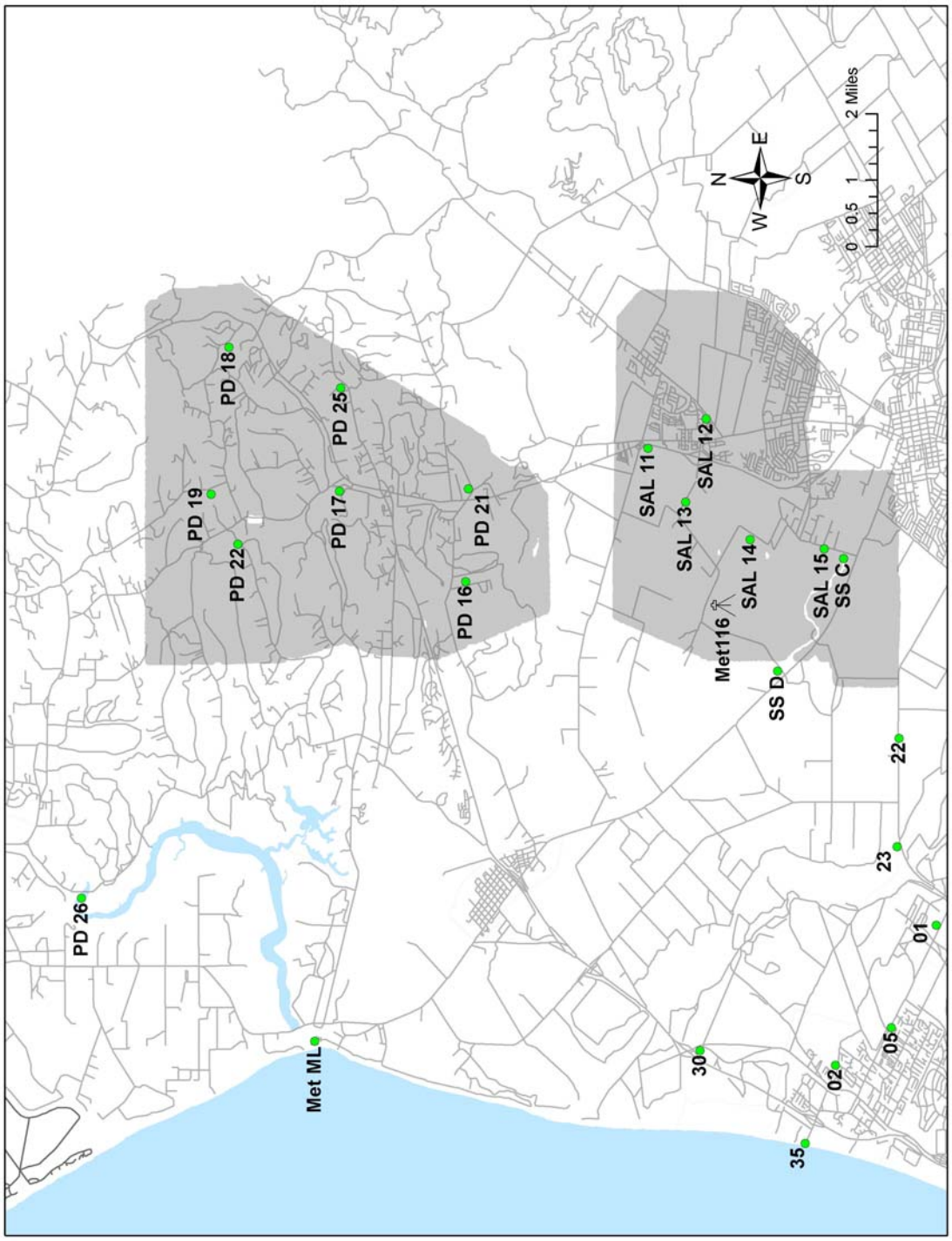
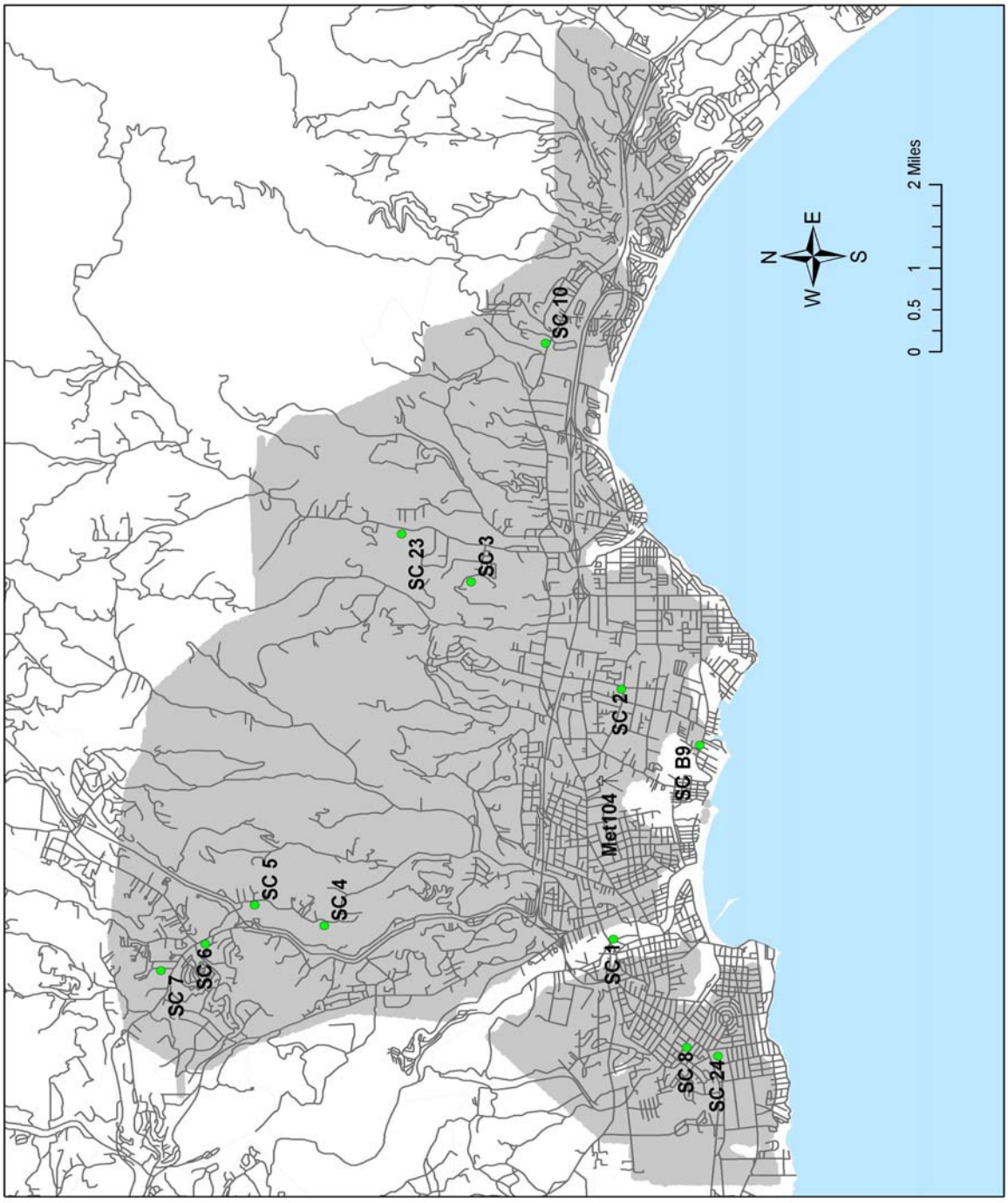


Figure 3. Santa Cruz Sampling Site Locations



RESULTS

Quality Control Samples

None of the blank mass deposition sheets contained detectable amounts of pheromone, indicating that contamination did not occur. The spiked samples showed variable results. Recoveries ranged from 52 percent to 137 percent of the spiked amount and averaged 52 percent to 131 percent that was used for adjustment. Due to the variable and in some cases low recoveries, the first treatments mass deposition sampling results have been adjusted to account for the recovery of the spiked samples. The spike recoveries, as well as adjusted and unadjusted values are shown in Appendix B. The storage stability test indicates that the mass deposition samples are stable for at least one month (Appendix E). All samples were extracted within 31 days of sample collection.

Contaminant Monitoring

All pre-application samples collected from the mixing/loading equipment and aircraft to test for contaminants were below the detection limits of 0.25 ppm for carbamate and 0.50 ppm for all other pesticides.

Application Tank Mixture Samples

Overall tank sample results ranged from 76 percent to 257 percent of the target concentration (Table 1). The tank sample results showed a large amount of variability between samples for the same treatment and even within analysis of a single sample. During the first treatment when the target tank-mix concentration of the Check Mate OLR-F® was 2.11 percent a.i., tank samples ranged from 0.69 percent a.i. to 2.97 percent a.i. The laboratory also had high variation among intra-sample results (Table 2). The standard deviation of four separate sub-samples from the same sample for all of the tank samples collected ranged from ± 0.15 to 1.35.

Table 1. Summary of pheromone a.i. concentrations in the aircraft spray tanks for the aerial treatments

Treatment	Average Tank Concentration (percent a.i.)	Average Tank Concentration as percent of Target Concentration
#1–Monterey Peninsula (Sept. 9–12)	1.62	76
#2–Monterey Peninsula (Oct.24–26)	4.16	257
#3–Santa Cruz/Prundale/Salinas (Nov. 8–11)	2.39	148
All treatments combined		160
Target application concentration		
Treatment #1	2.11	
Treatment #2 and #3	1.80	

Table 2. Results from intra-sample analysis of Treatment #1 tank samples

Sample	Concentration (percent a.i.) of each Subsample 1	2	3	4	Average	Std Dev (±)
1	1.31	1.79	1.12	0.37	1.15	0.59
2	0.85	0.76	0.99	0.17	0.69	0.36
3	0.68	1.48	1.59	1.53	1.32	0.43
4	0.96	3.83	3.4	3.7	2.97	1.35
5	1.82	2.09	1.78	1.99	1.92	0.15
6	1.23	2.22	1.69	1.41	1.64	0.43
				Average	1.62	

The tank sample concentrations during the second treatment ranged from 0.33 percent to 8.41 percent, with an average of 4.16 percent (Appendix A), compared to the target rate of 1.8 percent a.i. for the formulation used (Check Mate LBAM-F®). The cause of the variability could be due to several factors. It was noticed that the microcapsules tend to separate out of the mixture quickly and require constant mixing. Variability between samples may be, in some part, due to insufficient flushing of the lines between the tank and nozzles before sampling and separation of the product in the 3,000-gallon holding tanks. The third treatment tank samples were collected directly from the aircraft's holding tank to eliminate the possibility of variation due to sampling from the nozzle. The concentrations ranged from 1.23 percent to 3.41 percent,

with an average of 2.39 percent and a lower standard deviation than the second treatment (Appendix A).

Due to the insoluble nature of the pesticide product there are many potential sources for the high variability in the results including mixing and loading, sample collection, and chemical analysis. Statistical analyses did not show significant difference between the means of the tank mix concentrations of the three treatments (Appendix A). Mixing logs attained from CDFA indicate that the product was mixed at the correct rate.

Mass Deposition Samples

The application areas for each night were subject to change during the night for safety reasons due to visibility or excessive wind. Therefore, some sample locations within the application area for that night were not monitored and some locations monitored were outside the application area.

The first treatment occurred before the laboratory had finished developing an analytical method for detecting the pheromones on mass depositions sheets. The first treatment samples (October 2007) had low recoveries and therefore were adjusted based on the recoveries of the known spikes (Appendix B). If multiple spikes were used, the average of the spike recoveries was used to adjust the data. For the second and third treatments modifications were made to the extraction procedure, increasing recoveries, and therefore the results were not adjusted.

A summary of the pheromone a.i. concentration for each deposition sample is presented in Table 3. Samples inside the application area were collected within the portion of the total treatment area sprayed on the night of application. Samples in the buffer area were collected at the edge of the application area or untreated sensitive sites within the application area on the night of application. Samples collected outside the application area were located outside the area sprayed on the night of application. Concentrations detected on 64 samples collected inside an application area ranged from none detected (ND) to 285 micrograms per square foot (ug/ft^2), with an average of 80 ug/ft^2 (21 percent of the target application rate) for all three treatments (Table 3). Buffer area sample concentrations ranged from ND to 318 ug/ft^2 with an average of 56 ug/ft^2 (14 percent of the target application rate) for the 19 buffer area samples collected. Seventy-three samples were collected from outside the nightly application area at distances that ranged from 150 ft to 23,000 ft from the application boundary, and had concentrations that ranged from ND to 235 ug/ft^2. The comprehensive results of all samples collected are shown in Appendix C.

The amounts of a.i. detected on the deposition samples collected inside the nightly application area, expressed as percentages of the target application rate, were 26 percent, 16 percent, and 25 percent for the three treatments, respectively, with an average of 21 percent per sample.

Some sites outside the application area but within the overall treatment boundary have detectable amounts on one or more nights of application. Also, samples in the buffer areas, sensitive sites within the treatment area boundary, had detectable amounts on one or more nights of application. Table 4 presents a summary of the results at sites as a total of the sum of concentrations over the entire treatment period. Results from individual sampling sites are shown in Appendix C. Not all sites were monitored on multiple nights even though they may have been indirectly treated on multiple nights, which must be considered when evaluating this data.

The deposition monitoring results of samples outside the application area indicate that there was drift of the pheromone outside of the target area. Concentrations ranged from ND to 251 ug/ft² (0 to 55 percent of the target application rate), concentration and distance from the application boundary for sample sites that were located outside the application are plotted in Figure 4. Drift of the product was detected at considerable distance from the application boundary, 3.97 ug/ft² (1.15 percent of the target application rate) at 17,400 feet in one instance. Measuring drift was not part of the original monitoring design. Therefore, these data are presented as a qualitative assessment of drift.

Table 3. Summary of pheromone a.i. concentrations for deposition samples

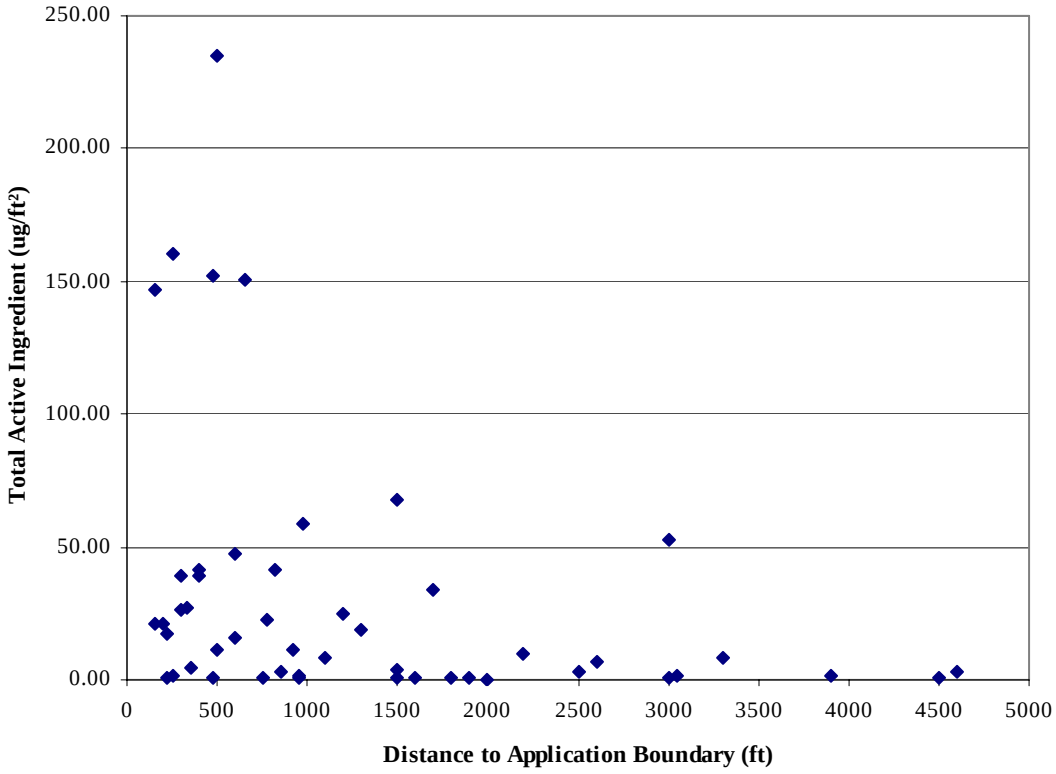
Treatment Number, Location and Dates, and Sample Types and Number of Samples	Average Deposition (ug/ft^2)	Minimum Deposition (ug/ft^2)	Maximum Deposition (ug/ft^2)	Target Application Rate (ug/ft^2)	Average of Target Application Rate (percent)
#1–Monterey Peninsula (Sep 9-12, 2007)					
Inside nightly application area (13 samples)	119	4.1	285	460	26
Buffer area (3 samples)	190	ND*	318		41
Outside nightly application area (14 samples)	47	ND	235		10
#2–Monterey Peninsula (Oct 24-26, 2007)					
Inside nightly application area (28 samples)	56	ND	247	344	16
Buffer area (11 samples)	33	ND	142		10
Outside nightly application area (49 samples)	10	ND	59		3
#3–Salinas/Prunedale/Santa Cruz (Nov 8-11, 2007)					
Inside nightly application area (23 samples)	87	ND	252	344	25
Buffer area (5 samples)	27	5	57		8
Outside nightly application area (10 samples)	41	ND	160		12
All treatments combined					
Inside nightly application area (63 samples)	80	ND	285		21
Buffer area (19 samples)	56	ND	318		14
Outside nightly application area (73 samples)	21	ND	235		6

* ND=None Detected. The smallest amount reported by the laboratory was 1 ug/ft^2

Table 4. Pheromone a.i. concentrations for each type of deposition site

Treatment Number, Location and Dates, and Site Type	Average Deposition (Sum of all Nights Sampled) (ug/ft^2)	Minimum Deposition (ug/ft^2)	Maximum Deposition (ug/ft^2)	Average of Target Application Rate (percent)
#1–Monterey Peninsula (Sep 9-12, 2007)				
Inside total treatment boundary (18 sites)	122	0.7	286	27
Buffer area (2 sites)	284	251	318	62
#2–Monterey Peninsula (Oct 24-26, 2007)				
Inside total treatment boundary (26 sites)	77	14	289	22
Buffer area (7 sites)	60	ND	144	18
#3–Salinas/Prunedale/Santa Cruz (Nov 8-11, 2007)				
Inside total treatment boundary (23 sites)	105	3.4	252	30
Buffer area (4 sites)	34	14	62	10
All treatments combined				
Inside total treatment boundary (67 sites)	99	0.7	289	26
Buffer area (13 sites)	87	ND	318	22

Figure 4. Deposition of pheromone a.i. on samples outside the application area and distance to the application area



Note: Two samples with detections past 5,000 ft, 1.64 ug/ft^2 at 7,900 ft and 3.97 ug/ft^2 at 17,400 ft, were omitted to increase the resolution at less than 5,000 ft.

Wind data is presented in the form of wind rose diagrams on the figures in Appendix D. Each spoke on the wind rose represents the direction, speed and duration of the wind from the start of the application to the collection of the last sample. The direction of the spoke is the direction the wind is blowing to, the length is the time in percent, and the color represents the speed. The closest 24 hour recording weather stations available are plotted. The weather station locations are identified as Met116 for Monterey County and Met104 for Santa Cruz. The Department of Water Resources' California Irrigation Management Information System manages these weather stations. For the Prunedale area applications the Moss Landing Marine Laboratories weather station, identified as Met ML, was used in addition to the Met116 station. These figures illustrate how locations thousands of feet from the application can have detectable levels of pheromones.

CONCLUSIONS

The ground deposition measured during the three treatments, stated as a percentage of the target rate, ranged from 16 percent to 26 percent per treatment and averaged 21 percent. These percentages were within the lower end of the range found during the Mexican fruit fly eradication treatments (Fan 2003a-g) (17 percent to 65 percent for 9 treatments) but were less than 50 percent of the Mexican fruit fly average of 48 percent. The Mexican fruit fly eradication treatments used the same aircraft at similar speed and application height but with a different product that produced larger droplets. Seventy-six to 92 percent average ground deposition was measured for the malathion bait used in the Mediterranean fruit fly eradication treatments, in 1981, 1991 and 1994 (Oshima 1982, Segawa 1991, and Bradley 1997). Different product, aircraft type(helicopter), application speed and appication heights were used, accounting for the greater deposition. Adding the concentrations of samples collected at the same site, but on multiple application nights, raises the average ground deposition to 26 percent. Because not all sites were monitored on every application night, this may also be an underestimate of the total deposition. Measurable drift was observed, although most observations were within the treatment area.

Tank samples had high variability due to the insoluble nature of the product; problems occurred from mixing, sampling and analysis. The target application rate was used to for comparison to deposition rates, not chemical analysis. Logs and data collected from CDFA staff mixing the product on the nights of the applications confirm the product was prepared at the correct rate. In addition, the high concentrations (greater than the target amount) detected in some of the tank samples are inconsistent with the low amounts (less than the target amount) detected on the mass deposition samples. This indicates difficulty in mixing the product and/or difficulty in obtaining representative samples.

Attachment

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APPENDIX A

Tank Sample Analysis

Percent A.I. Measured in the Tank								
Treatment #1			Treatment #2			Treatment #3		
9-Sep	Aircraft 1	1.15	24-Oct	Aircraft 1	0.33	8-Nov	Aircraft 1	2.47
9-Sep	Aircraft 2	0.69	25-Oct	Aircraft 1	8.41	8-Nov	Aircraft 3	1.23
10-Sep	Aircraft 1	1.32	25-Oct	Aircraft 2	2.35	9-Nov	Aircraft 2	3.07
11-Sep	Aircraft 2	2.97	25-Oct	Aircraft 3	3.16	9-Nov	Aircraft 3	1.74
11-Sep	Tank1	1.92	26-Oct	Aircraft 2	6.55	11-Nov	Aircraft 1	2.39
12-Sep	Tank2	1.64				11-Nov	Aircraft 2	3.41
Average		1.62	Average		4.16	Average		2.39
Standard Deviation		0.79	Standard Deviation		3.27	Standard Deviation		0.81
Target Rate		2.11	Target Rate		1.80	Target Rate		1.80

One Way Analysis of Variance (log transformed values)

Normality Test: Passed (P = 0.094)

Equal Variance Test: Passed (P = 0.048)

	N	Missing	Mean	Std Dev	SEM
Treatment #1	6	0	0.165	0.215	0.0876
Treatment #2	5	0	0.426	0.555	0.248
Treatment #3	6	0	0.354	0.164	0.0669

Source of Variation	DF	SS	MS	F	P
Between Groups	2	0.205	0.102	0.896	0.430
Residual	14	1.598	0.114		
Total	16	1.802			

The differences in the mean values among the treatment groups are not great enough to exclude the possibility that the difference is due to random sampling variability; there is not a statistically significant difference (P = 0.430).

APPENDIX B

Deposition results, spike recoveries, and adjustment (1 of 11)

Date	Site	Chemical	Amount Detected (ug)	Recoveries (percent) Spike 1	Spike 2	Spike 3	Adjusted Amount (ug)
9/9/2007	01	11-tetradecnyl acetate (Z)	32.20	73			44.10
9/9/2007	01	11-tetradecnyl acetate (E)	120.00	63			190.47
9/9/2007	01	11-tetradecnyl acetate (all AI)	152.20				234.58
9/9/2007	03	11-tetradecnyl acetate (Z)	0.09	73			0.12
9/9/2007	03	11-tetradecnyl acetate (E)	0.15	63			0.23
9/9/2007	03	11-tetradecnyl acetate (all AI)	0.24				0.36
9/9/2007	04	11-tetradecnyl acetate (Z)	16.20	73			22.19
9/9/2007	04	11-tetradecnyl acetate (E)	59.00	63			93.65
9/9/2007	04	11-tetradecnyl acetate (all AI)	75.20				115.84
9/9/2007	05	11-tetradecnyl acetate (Z)	0.11	73			0.15
9/9/2007	05	11-tetradecnyl acetate (E)	0.32	63			0.50
9/9/2007	05	11-tetradecnyl acetate (all AI)	0.43				0.65
9/9/2007	06	11-tetradecnyl acetate (Z)	0.15	73			0.20
9/9/2007	06	11-tetradecnyl acetate (E)	0.11	63			0.17
9/9/2007	06	11-tetradecnyl acetate (all AI)	0.26				0.38
9/9/2007	07	11-tetradecnyl acetate (Z)	16.00	73			21.91
9/9/2007	07	11-tetradecnyl acetate (E)	58.70	63			93.17
9/9/2007	07	11-tetradecnyl acetate (all AI)	74.70				115.09
9/9/2007	08	11-tetradecnyl acetate (Z)	22.90	73			31.36
9/9/2007	08	11-tetradecnyl acetate (E)	81.30	63			129.04
9/9/2007	08	11-tetradecnyl acetate (all AI)	104.20				160.41
9/9/2007	09	11-tetradecnyl acetate (Z)	11.50	73			15.75
9/9/2007	09	11-tetradecnyl acetate (E)	40.60	63			64.44
9/9/2007	09	11-tetradecnyl acetate (all AI)	52.10				80.19
9/9/2007	10	11-tetradecnyl acetate (Z)	0.70	73			0.95
9/9/2007	10	11-tetradecnyl acetate (E)	2.00	63			3.17
9/9/2007	10	11-tetradecnyl acetate (all AI)	2.70				4.13
9/10/2007	01	11-tetradecnyl acetate (Z)	1.10	103	103	100	1.07
9/10/2007	01	11-tetradecnyl acetate (E)	3.60	89	87	91	4.04
9/10/2007	01	11-tetradecnyl acetate (all AI)	4.70				5.12
9/10/2007	03	11-tetradecnyl acetate (Z)	40.70	98	101	102	40.56
9/10/2007	03	11-tetradecnyl acetate (E)	149.00	106	78	88	164.30
9/10/2007	03	11-tetradecnyl acetate (all AI)	189.70				204.90
9/10/2007	06	11-tetradecnyl acetate (Z)	15.60	98	101	102	15.54
9/10/2007	06	11-tetradecnyl acetate (E)	58.70	106	78	88	64.74
9/10/2007	06	11-tetradecnyl acetate (all AI)	74.30				80.29
9/10/2007	10	11-tetradecnyl acetate (Z)	13.70	98	101	102	13.65
9/10/2007	10	11-tetradecnyl acetate (E)	49.10	106	78	88	54.15
9/10/2007	10	11-tetradecnyl acetate (all AI)	62.80				67.80
9/10/2007	11	11-tetradecnyl acetate (Z)	28.30	98	101	102	28.20
9/10/2007	11	11-tetradecnyl acetate (E)	111.00	106	78	88	122.42
9/10/2007	11	11-tetradecnyl acetate (all AI)	139.00				150.63

Deposition results, spike recoveries, and adjustment (2 of 11)

Date	Site	Chemical	Amount Detected (ug)	Recoveries (percent) Spike 1	Spike 2	Spike 3	Adjusted Amount (ug)
9/10/2007	12	11-tetradecnyl acetate (Z)	35.70	98	101	102	35.58
9/10/2007	12	11-tetradecnyl acetate (E)	145.00	106	78	88	159.92
9/10/2007	12	11-tetradecnyl acetate (all AI)	180.80				195.50
9/10/2007	13	11-tetradecnyl acetate (Z)	28.00	82			34.14
9/10/2007	13	11-tetradecnyl acetate (E)	113.00	52			217.30
9/10/2007	13	11-tetradecnyl acetate (all AI)	141.00				251.45
9/10/2007	14	11-tetradecnyl acetate (Z)	36.90	73			50.54
9/10/2007	14	11-tetradecnyl acetate (E)	148.00	63			234.92
9/10/2007	14	11-tetradecnyl acetate (all AI)	185.20				285.46
9/10/2007	15	11-tetradecnyl acetate (Z)	35.40	82			43.17
9/10/2007	15	11-tetradecnyl acetate (E)	143.00	52			275.00
9/10/2007	15	11-tetradecnyl acetate (all AI)	178.40				318.17
9/10/2007	16	11-tetradecnyl acetate (Z)	ND	98	101	102	
9/10/2007	16	11-tetradecnyl acetate (E)	9.20	106	78	88	10.14
9/10/2007	16	11-tetradecnyl acetate (all AI)	9.20				10.14
9/10/2007	17	11-tetradecnyl acetate (Z)	24.90	98	101	102	24.81
9/10/2007	17	11-tetradecnyl acetate (E)	91.40	106	78	88	100.80
9/10/2007	17	11-tetradecnyl acetate (all AI)	116.30				125.62
9/10/2007	18	11-tetradecnyl acetate (Z)	12.70	98	101	102	12.65
9/10/2007	18	11-tetradecnyl acetate (E)	42.20	106	78	88	46.54
9/10/2007	18	11-tetradecnyl acetate (all AI)	54.90				59.20
9/10/2007	19	11-tetradecnyl acetate (Z)	27.70	98	101	102	27.60
9/10/2007	19	11-tetradecnyl acetate (E)	113.00	106	78	88	124.63
9/10/2007	19	11-tetradecnyl acetate (all AI)	140.90				152.24
9/10/2007	20	11-tetradecnyl acetate (Z)	6.29	98	101	102	6.26
9/10/2007	20	11-tetradecnyl acetate (E)	24.70	106	78	88	27.24
9/10/2007	20	11-tetradecnyl acetate (all AI)	30.99				33.51
9/11/2007	02	11-tetradecnyl acetate (Z)	20.70	103	103	100	20.29
9/11/2007	02	11-tetradecnyl acetate (E)	82.80	89	87	91	93.03
9/11/2007	02	11-tetradecnyl acetate (all AI)	103.50				113.32
9/11/2007	03	11-tetradecnyl acetate (Z)	0.20	103	103	100	0.19
9/11/2007	03	11-tetradecnyl acetate (E)	0.52	89	87	91	0.58
9/11/2007	03	11-tetradecnyl acetate (all AI)	0.72				0.78
9/11/2007	11	11-tetradecnyl acetate (Z)	ND	103	103	100	
9/11/2007	11	11-tetradecnyl acetate (E)	ND	89	87	91	
9/11/2007	11	11-tetradecnyl acetate (all AI)	ND				
9/11/2007	15	11-tetradecnyl acetate (Z)	ND	82			
9/11/2007	15	11-tetradecnyl acetate (E)	ND	52			
9/11/2007	15	11-tetradecnyl acetate (all AI)	ND				
9/11/2007	16	11-tetradecnyl acetate (Z)	ND	103	103	100	
9/11/2007	16	11-tetradecnyl acetate (E)	ND	89	87	91	
9/11/2007	16	11-tetradecnyl acetate (all AI)	ND				
9/11/2007	18	11-tetradecnyl acetate (Z)	ND	103	103	100	
9/11/2007	18	11-tetradecnyl acetate (E)	ND	89	87	91	
9/11/2007	18	11-tetradecnyl acetate (all AI)	ND				

Deposition results, spike recoveries, and adjustment (3 of 11)

Date	Site	Chemical	Amount Detected (ug)	Recoveries (percent) Spike 1	Spike 2	Spike 3	Amount if Adjusted (ug)
9/11/2007	20	11-tetradecnyl acetate (Z)	ND	103	103	100	
9/11/2007	20	11-tetradecnyl acetate (E)	ND	89	87	91	
9/11/2007	20	11-tetradecnyl acetate (all AI)	ND				
10/24/2007	01	11-tetradecnyl acetate (EE)	ND	73	82	63	
10/24/2007	01	11-tetradecnyl acetate (E)	ND	74	72	76	
10/24/2007	01	11-tetradecnyl acetate (all AI)	ND				
10/24/2007	02	11-tetradecnyl acetate (EE)	ND	73	82	63	
10/24/2007	02	11-tetradecnyl acetate (E)	2.90	74	72	76	3.91
10/24/2007	02	11-tetradecnyl acetate (all AI)	2.90				3.91
10/24/2007	03	11-tetradecnyl acetate (EE)	ND	73	82	63	
10/24/2007	03	11-tetradecnyl acetate (E)	3.74	74	72	76	5.05
10/24/2007	03	11-tetradecnyl acetate (all AI)	3.74				5.05
10/24/2007	04	11-tetradecnyl acetate (EE)	ND	73	82	63	
10/24/2007	04	11-tetradecnyl acetate (E)	6.43	74	72	76	8.68
10/24/2007	04	11-tetradecnyl acetate (all AI)	6.43				8.68
10/24/2007	05	11-tetradecnyl acetate (EE)	ND	73	82	63	
10/24/2007	05	11-tetradecnyl acetate (E)	1.27	74	72	76	1.71
10/24/2007	05	11-tetradecnyl acetate (all AI)	1.27				1.71
10/24/2007	06	11-tetradecnyl acetate (EE)	ND	73	82	63	
10/24/2007	06	11-tetradecnyl acetate (E)	1.00	74	72	76	1.35
10/24/2007	06	11-tetradecnyl acetate (all AI)	1.00				1.35
10/24/2007	07	11-tetradecnyl acetate (EE)	ND	115	81	57	
10/24/2007	07	11-tetradecnyl acetate (E)	ND	84	77	70	
10/24/2007	07	11-tetradecnyl acetate (all AI)	ND				
10/24/2007	08	11-tetradecnyl acetate (EE)	ND	115	81	57	
10/24/2007	08	11-tetradecnyl acetate (E)	1.21	84	77	70	1.57
10/24/2007	08	11-tetradecnyl acetate (all AI)	1.21				1.57
10/24/2007	09	11-tetradecnyl acetate (EE)	5.64	115	81	57	6.68
10/24/2007	09	11-tetradecnyl acetate (E)	64.10	84	77	70	83.24
10/24/2007	09	11-tetradecnyl acetate (all AI)	69.74				89.92
10/24/2007	10	11-tetradecnyl acetate (EE)	ND	137	128	121	
10/24/2007	10	11-tetradecnyl acetate (E)	11.50	57	122	92	12.71
10/24/2007	10	11-tetradecnyl acetate (all AI)	11.50				12.71
10/24/2007	11	11-tetradecnyl acetate (EE)	3.69	137	128	121	2.86
10/24/2007	11	11-tetradecnyl acetate (E)	43.60	57	122	92	48.19
10/24/2007	11	11-tetradecnyl acetate (all AI)	47.29				51.05
10/24/2007	13	11-tetradecnyl acetate (EE)	4.32	137	128	121	3.35
10/24/2007	13	11-tetradecnyl acetate (E)	67.80	57	122	92	74.94
10/24/2007	13	11-tetradecnyl acetate (all AI)	72.12				78.29
10/24/2007	14	11-tetradecnyl acetate (EE)	4.03	137	128	121	3.13
10/24/2007	14	11-tetradecnyl acetate (E)	54.50	57	122	92	60.24
10/24/2007	14	11-tetradecnyl acetate (all AI)	58.53				63.37
10/24/2007	15	11-tetradecnyl acetate (EE)	2.21	137	128	121	1.71
10/24/2007	15	11-tetradecnyl acetate (E)	23.20	57	122	92	25.64
10/24/2007	15	11-tetradecnyl acetate (all AI)	25.41				27.35

Deposition results, spike recoveries, and adjustment (4 of 11)

Date	Site	Chemical	Amount Detected (ug)	Recoveries (percent) Spike 1	Spike 2	Spike 3	Amount if Adjusted (ug)
10/24/2007	16	11-tetradecnyl acetate (EE)	3.00	115	81	57	3.55
10/24/2007	16	11-tetradecnyl acetate (E)	27.40	84	77	70	35.58
10/24/2007	16	11-tetradecnyl acetate (all AI)	30.40				39.13
10/24/2007	17	11-tetradecnyl acetate (EE)	2.54	137	128	121	1.97
10/24/2007	17	11-tetradecnyl acetate (E)	28.80	57	122	92	31.83
10/24/2007	17	11-tetradecnyl acetate (all AI)	31.34				33.80
10/24/2007	18	11-tetradecnyl acetate (EE)	6.40	137	128	121	4.97
10/24/2007	18	11-tetradecnyl acetate (E)	107.00	57	122	92	118.27
10/24/2007	18	11-tetradecnyl acetate (all AI)	113.40				123.24
10/24/2007	19	11-tetradecnyl acetate (EE)	2.27	137	128	121	1.76
10/24/2007	19	11-tetradecnyl acetate (E)	39.30	57	122	92	43.44
10/24/2007	19	11-tetradecnyl acetate (all AI)	41.57				45.20
10/24/2007	20	11-tetradecnyl acetate (EE)	4.74	115	81	57	5.62
10/24/2007	20	11-tetradecnyl acetate (E)	58.70	84	77	70	76.23
10/24/2007	20	11-tetradecnyl acetate (all AI)	63.44				81.85
10/24/2007	22	11-tetradecnyl acetate (EE)	ND	115	81	57	
10/24/2007	22	11-tetradecnyl acetate (E)	ND	84	77	70	
10/24/2007	22	11-tetradecnyl acetate (all AI)	ND				
10/24/2007	23	11-tetradecnyl acetate (EE)	ND	115	81	57	
10/24/2007	23	11-tetradecnyl acetate (E)	1.27	84	77	70	1.64
10/24/2007	23	11-tetradecnyl acetate (all AI)	1.27				1.64
10/24/2007	24	11-tetradecnyl acetate (EE)	ND	73	82	63	
10/24/2007	24	11-tetradecnyl acetate (E)	ND	74	72	76	
10/24/2007	24	11-tetradecnyl acetate (all AI)	ND				
10/24/2007	25	11-tetradecnyl acetate (EE)	ND	115	81	57	
10/24/2007	25	11-tetradecnyl acetate (E)	ND	84	77	70	
10/24/2007	25	11-tetradecnyl acetate (all AI)	ND				
10/24/2007	26	11-tetradecnyl acetate (EE)	4.87	137	128	121	3.78
10/24/2007	26	11-tetradecnyl acetate (E)	52.00	57	122	92	57.47
10/24/2007	26	11-tetradecnyl acetate (all AI)	56.87				61.25
10/24/2007	27	11-tetradecnyl acetate (EE)	2.66	115	81	57	3.15
10/24/2007	27	11-tetradecnyl acetate (E)	41.60	84	77	70	54.02
10/24/2007	27	11-tetradecnyl acetate (all AI)	44.26				57.17
10/24/2007	28	11-tetradecnyl acetate (EE)	3.93	115	81	57	4.66
10/24/2007	28	11-tetradecnyl acetate (E)	52.70	84	77	70	68.44
10/24/2007	28	11-tetradecnyl acetate (all AI)	56.63				73.10
10/24/2007	29	11-tetradecnyl acetate (EE)	3.88	115	81	57	4.60
10/24/2007	29	11-tetradecnyl acetate (E)	36.90	84	77	70	47.92
10/24/2007	29	11-tetradecnyl acetate (all AI)	40.78				52.52
10/24/2007	30	11-tetradecnyl acetate (EE)	ND	73	82	63	
10/24/2007	30	11-tetradecnyl acetate (E)	14.00	74	72	76	18.91
10/24/2007	30	11-tetradecnyl acetate (all AI)	14.00				18.91
10/24/2007	31	11-tetradecnyl acetate (EE)	3.82	137	128	121	2.96
10/24/2007	31	11-tetradecnyl acetate (E)	35.60	57	122	92	39.35
10/24/2007	31	11-tetradecnyl acetate (all AI)	39.42				42.31

Deposition results, spike recoveries, and adjustment (5 of 11)

Date	Site	Chemical	Amount Detected (ug)	Recoveries (percent) Spike 1	Spike 2	Spike 3	Amount if Adjusted (ug)
10/24/2007	32	11-tetradecnyl acetate (EE)	5.14	137	128	121	3.99
10/24/2007	32	11-tetradecnyl acetate (E)	45.80	57	122	92	50.62
10/24/2007	32	11-tetradecnyl acetate (all AI)	50.94				54.61
10/24/2007	33	11-tetradecnyl acetate (EE)	5.30	137	128	121	4.11
10/24/2007	33	11-tetradecnyl acetate (E)	47.20	57	122	92	52.17
10/24/2007	33	11-tetradecnyl acetate (all AI)	52.50				56.28
10/24/2007	34	11-tetradecnyl acetate (EE)	3.77	115	81	57	4.47
10/24/2007	34	11-tetradecnyl acetate (E)	29.90	84	77	70	38.83
10/24/2007	34	11-tetradecnyl acetate (all AI)	33.67				43.30
10/24/2007	35	11-tetradecnyl acetate (EE)	ND	73	82	63	
10/24/2007	35	11-tetradecnyl acetate (E)	ND	74	72	76	
10/24/2007	35	11-tetradecnyl acetate (all AI)	ND				
10/25/2007	01	11-tetradecnyl acetate (EE)	1.19	123	89	82	1.21
10/25/2007	01	11-tetradecnyl acetate (E)	23.80	99	78	110	24.87
10/25/2007	01	11-tetradecnyl acetate (all AI)	24.99				26.08
10/25/2007	02	11-tetradecnyl acetate (EE)	ND	115	115	80	
10/25/2007	02	11-tetradecnyl acetate (E)	1.01	102	103	83	1.05
10/25/2007	02	11-tetradecnyl acetate (all AI)	1.01				1.05
10/25/2007	03	11-tetradecnyl acetate (EE)	ND	115	115	80	
10/25/2007	03	11-tetradecnyl acetate (E)	4.78	102	103	83	4.97
10/25/2007	03	11-tetradecnyl acetate (all AI)	4.78				4.97
10/25/2007	04	11-tetradecnyl acetate (EE)	ND	115	115	80	
10/25/2007	04	11-tetradecnyl acetate (E)	8.23	102	103	83	8.57
10/25/2007	04	11-tetradecnyl acetate (all AI)	8.23				8.57
10/25/2007	05	11-tetradecnyl acetate (EE)	ND	123	89	82	
10/25/2007	05	11-tetradecnyl acetate (E)	ND	99	78	110	
10/25/2007	05	11-tetradecnyl acetate (all AI)	ND				
10/25/2007	06	11-tetradecnyl acetate (EE)	ND	115	115	80	
10/25/2007	06	11-tetradecnyl acetate (E)	6.16	102	103	83	6.41
10/25/2007	06	11-tetradecnyl acetate (all AI)	6.16				6.41
10/25/2007	07	11-tetradecnyl acetate (EE)	2.35	115	115	80	2.27
10/25/2007	07	11-tetradecnyl acetate (E)	36.60	102	103	83	38.12
10/25/2007	07	11-tetradecnyl acetate (all AI)	38.95				40.39
10/25/2007	08	11-tetradecnyl acetate (EE)	ND	131			
10/25/2007	08	11-tetradecnyl acetate (E)	2.83	90			3.14
10/25/2007	08	11-tetradecnyl acetate (all AI)	2.83				3.14
10/25/2007	09	11-tetradecnyl acetate (EE)	ND	131			
10/25/2007	09	11-tetradecnyl acetate (E)	ND	90			
10/25/2007	09	11-tetradecnyl acetate (all AI)	ND				
10/25/2007	10	11-tetradecnyl acetate (EE)	ND	115	115	80	
10/25/2007	10	11-tetradecnyl acetate (E)	ND	102	103	83	
10/25/2007	10	11-tetradecnyl acetate (all AI)	ND				
10/25/2007	11	11-tetradecnyl acetate (EE)	ND	131			
10/25/2007	11	11-tetradecnyl acetate (E)	ND	90			
10/25/2007	11	11-tetradecnyl acetate (all AI)	ND				

Deposition results, spike recoveries, and adjustment (6 of 11)

Date	Site	Chemical	Amount Detected (ug)	Recoveries (percent) Spike 1	Spike 2	Spike 3	Amount if Adjusted (ug)
10/25/2007	13	11-tetradecnyl acetate (EE)	ND	131			
10/25/2007	13	11-tetradecnyl acetate (E)	ND	90			
10/25/2007	13	11-tetradecnyl acetate (all AI)	ND				
10/25/2007	14	11-tetradecnyl acetate (EE)	ND	131			
10/25/2007	14	11-tetradecnyl acetate (E)	ND	90			
10/25/2007	14	11-tetradecnyl acetate (all AI)	ND				
10/25/2007	15	11-tetradecnyl acetate (EE)	ND	131			
10/25/2007	15	11-tetradecnyl acetate (EE)	ND	131			
10/25/2007	15	11-tetradecnyl acetate (all AI)	ND				
10/25/2007	16	11-tetradecnyl acetate (EE)	ND	115	115	80	
10/25/2007	16	11-tetradecnyl acetate (E)	ND	102	103	83	
10/25/2007	16	11-tetradecnyl acetate (all AI)	ND				
10/25/2007	17	11-tetradecnyl acetate (EE)	ND	131			
10/25/2007	17	11-tetradecnyl acetate (E)	ND	90			
10/25/2007	17	11-tetradecnyl acetate (all AI)	ND				
10/25/2007	18	11-tetradecnyl acetate (EE)	ND	131			
10/25/2007	18	11-tetradecnyl acetate (E)	ND	90			
10/25/2007	18	11-tetradecnyl acetate (all AI)	ND				
10/25/2007	19	11-tetradecnyl acetate (EE)	ND	115	115	80	
10/25/2007	19	11-tetradecnyl acetate (E)	ND	102	103	83	
10/25/2007	19	11-tetradecnyl acetate (all AI)	ND				
10/25/2007	20	11-tetradecnyl acetate (EE)	ND	115	115	80	
10/25/2007	20	11-tetradecnyl acetate (E)	ND	102	103	83	
10/25/2007	20	11-tetradecnyl acetate (all AI)	ND				
10/25/2007	22	11-tetradecnyl acetate (EE)	ND	123	89	82	
10/25/2007	22	11-tetradecnyl acetate (E)	3.12	99	78	110	3.26
10/25/2007	22	11-tetradecnyl acetate (all AI)	3.12				3.26
10/25/2007	23	11-tetradecnyl acetate (EE)	ND	123	89	82	
10/25/2007	23	11-tetradecnyl acetate (E)	ND	99	78	110	
10/25/2007	23	11-tetradecnyl acetate (all AI)	ND				
10/25/2007	24	11-tetradecnyl acetate (EE)	ND	115	115	80	
10/25/2007	24	11-tetradecnyl acetate (E)	ND	102	103	83	
10/25/2007	24	11-tetradecnyl acetate (all AI)	ND				
10/25/2007	25	11-tetradecnyl acetate (EE)	ND	123	89	82	
10/25/2007	25	11-tetradecnyl acetate (E)	8.10	99	78	110	8.46
10/25/2007	25	11-tetradecnyl acetate (all AI)	8.10				8.46
10/25/2007	27	11-tetradecnyl acetate (EE)	ND	131			
10/25/2007	27	11-tetradecnyl acetate (E)	ND	90			
10/25/2007	27	11-tetradecnyl acetate (all AI)	ND				
10/25/2007	30	11-tetradecnyl acetate (EE)	ND	115	115	80	
10/25/2007	30	11-tetradecnyl acetate (E)	ND	102	103	83	
10/25/2007	30	11-tetradecnyl acetate (all AI)	ND				
10/25/2007	32	11-tetradecnyl acetate (EE)	ND	131			
10/25/2007	32	11-tetradecnyl acetate (E)	ND	90			
10/25/2007	32	11-tetradecnyl acetate (all AI)	ND				

Deposition results, spike recoveries, and adjustment (7 of 11)

Date	Site	Chemical	Amount Detected (ug)	Recoveries (percent) Spike 1	Spike 2	Spike 3	Amount if Adjusted (ug)
10/25/2007	33	11-tetradecnyl acetate (EE)	ND	131			
10/25/2007	33	11-tetradecnyl acetate (E)	ND	90			
10/25/2007	33	11-tetradecnyl acetate (all AI)	ND				
10/25/2007	34	11-tetradecnyl acetate (EE)	ND	131			
10/25/2007	34	11-tetradecnyl acetate (E)	ND	90			
10/25/2007	34	11-tetradecnyl acetate (all AI)	ND				
10/25/2007	35	11-tetradecnyl acetate (EE)	ND	115	115	80	
10/25/2007	35	11-tetradecnyl acetate (E)	ND	102	103	83	
10/25/2007	35	11-tetradecnyl acetate (all AI)	ND				
10/26/2007	01	11-tetradecnyl acetate (EE)	2.95	73	82	63	4.05
10/26/2007	01	11-tetradecnyl acetate (E)	138.00	74	72	76	186.48
10/26/2007	01	11-tetradecnyl acetate (all AI)	140.95				190.53
10/26/2007	02	11-tetradecnyl acetate (EE)	5.93	99			5.98
10/26/2007	02	11-tetradecnyl acetate (E)	79.30	107			74.11
10/26/2007	02	11-tetradecnyl acetate (all AI)	85.23				80.09
10/26/2007	03	11-tetradecnyl acetate (EE)	ND	116	65		
10/26/2007	03	11-tetradecnyl acetate (E)	18.30	126	73		18.39
10/26/2007	03	11-tetradecnyl acetate (all AI)	18.30				18.39
10/26/2007	04	11-tetradecnyl acetate (EE)	8.22	99			8.30
10/26/2007	04	11-tetradecnyl acetate (E)	129.00	107			120.56
10/26/2007	04	11-tetradecnyl acetate (all AI)	137.22				128.86
10/26/2007	05	11-tetradecnyl acetate (EE)	1.06	73	82	63	1.45
10/26/2007	05	11-tetradecnyl acetate (E)	16.30	74	72	76	22.02
10/26/2007	05	11-tetradecnyl acetate (all AI)	17.36				23.47
10/26/2007	06	11-tetradecnyl acetate (EE)	1.01	116	65		1.11
10/26/2007	06	11-tetradecnyl acetate (E)	21.50	126	73		21.60
10/26/2007	06	11-tetradecnyl acetate (all AI)	22.51				22.71
10/26/2007	07	11-tetradecnyl acetate (EE)	5.81	116	65		6.41
10/26/2007	07	11-tetradecnyl acetate (E)	46.90	126	73		47.13
10/26/2007	07	11-tetradecnyl acetate (all AI)	52.71				53.54
10/26/2007	08	11-tetradecnyl acetate (EE)	1.21	123	89	82	1.23
10/26/2007	08	11-tetradecnyl acetate (E)	38.30	99	78	110	40.03
10/26/2007	08	11-tetradecnyl acetate (all AI)	39.51				41.26
10/26/2007	09	11-tetradecnyl acetate (EE)	6.40	116	65		7.07
10/26/2007	09	11-tetradecnyl acetate (E)	48.40	126	73		48.64
10/26/2007	09	11-tetradecnyl acetate (all AI)	54.80				55.71
10/26/2007	10	11-tetradecnyl acetate (EE)	ND	116	65		
10/26/2007	10	11-tetradecnyl acetate (E)	15.50	126	73		15.57
10/26/2007	10	11-tetradecnyl acetate (all AI)	15.50				15.57
10/26/2007	11	11-tetradecnyl acetate (EE)	2.67	123	89	82	2.72
10/26/2007	11	11-tetradecnyl acetate (E)	79.30	99	78	110	82.89
10/26/2007	11	11-tetradecnyl acetate (all AI)	81.97				85.61
10/26/2007	13	11-tetradecnyl acetate (EE)	ND	123	89	82	
10/26/2007	13	11-tetradecnyl acetate (E)	ND	99	78	110	
10/26/2007	13	11-tetradecnyl acetate (all AI)	ND				

Deposition results, spike recoveries, and adjustment (8 of 11)

Date	Site	Chemical	Amount Detected (ug)	Recoveries (percent) Spike 1	Spike 2	Spike 3	Amount if Adjusted (ug)
10/26/2007	14	11-tetradecnyl acetate (EE)	ND	123	89	82	20.20
10/26/2007	14	11-tetradecnyl acetate (E)	19.89	99	78	110	4.58
10/26/2007	14	11-tetradecnyl acetate (all AI)	19.8				24.78
10/26/2007	15	11-tetradecnyl acetate (EE)	ND	123	89	82	
10/26/2007	15	11-tetradecnyl acetate (E)	5.71	99	78	110	5.96
10/26/2007	15	11-tetradecnyl acetate (all AI)	5.71				5.96
10/26/2007	16	11-tetradecnyl acetate (EE)	1.13	116	65		1.24
10/26/2007	16	11-tetradecnyl acetate (E)	20.10	126	73		20.20
10/26/2007	16	11-tetradecnyl acetate (all AI)	21.23				21.44
10/26/2007	17	11-tetradecnyl acetate (EE)	ND	116	65		
10/26/2007	17	11-tetradecnyl acetate (E)	1.16	126	73		1.16
10/26/2007	17	11-tetradecnyl acetate (all AI)	1.16				1.16
10/26/2007	19	11-tetradecnyl acetate (EE)	21.20	116	65		23.42
10/26/2007	19	11-tetradecnyl acetate (E)	226.00	126	73		227.13
10/26/2007	19	11-tetradecnyl acetate (all AI)	247.20				250.55
10/26/2007	20	11-tetradecnyl acetate (EE)	1.50	116	65		1.65
10/26/2007	20	11-tetradecnyl acetate (E)	25.90	126	73		26.03
10/26/2007	20	11-tetradecnyl acetate (all AI)	27.40				27.68
10/26/2007	22	11-tetradecnyl acetate (EE)	2.24	116	65		2.47
10/26/2007	22	11-tetradecnyl acetate (E)	56.90	126	73		57.18
10/26/2007	22	11-tetradecnyl acetate (all AI)	59.14				59.65
10/26/2007	23	11-tetradecnyl acetate (EE)	18.30	116	65		20.22
10/26/2007	23	11-tetradecnyl acetate (E)	124.00	126	73		124.62
10/26/2007	23	11-tetradecnyl acetate (all AI)	142.30				144.84
10/26/2007	24	11-tetradecnyl acetate (EE)	1.22	99			1.23
10/26/2007	24	11-tetradecnyl acetate (E)	20.10	107			18.78
10/26/2007	24	11-tetradecnyl acetate (all AI)	21.32				20.01
10/26/2007	25	11-tetradecnyl acetate (EE)	3.52	116	65		3.88
10/26/2007	25	11-tetradecnyl acetate (E)	86.30	126	73		86.73
10/26/2007	25	11-tetradecnyl acetate (all AI)	89.82				90.61
10/26/2007	32	11-tetradecnyl acetate (EE)	ND	123	89	82	
10/26/2007	32	11-tetradecnyl acetate (E)	8.40	99	78	110	8.78
10/26/2007	32	11-tetradecnyl acetate (all AI)	8.40				8.78
10/26/2007	33	11-tetradecnyl acetate (EE)	ND	123	89	82	
10/26/2007	33	11-tetradecnyl acetate (E)	22.50	99	78	110	23.51
10/26/2007	33	11-tetradecnyl acetate (all AI)	22.50				23.51
10/26/2007	35	11-tetradecnyl acetate (EE)	ND	99			
10/26/2007	35	11-tetradecnyl acetate (E)	3.14	107			2.93
10/26/2007	35	11-tetradecnyl acetate (all AI)	3.14				2.93
11/8/2007	SC 1	11-tetradecnyl acetate (EE)	2.04	85			2.40
11/8/2007	SC 1	11-tetradecnyl acetate (E)	12.30	87			14.13
11/8/2007	SC 1	11-tetradecnyl acetate (all AI)	14.34				16.53
11/8/2007	SC 10	11-tetradecnyl acetate (EE)	3.07	85			3.61
11/8/2007	SC 10	11-tetradecnyl acetate (E)	38.20	87			43.90
11/8/2007	SC 10	11-tetradecnyl acetate (all AI)	41.27				47.51

Deposition results, spike recoveries, and adjustment (9 of 11)

Date	Site	Chemical	Amount Detected (ug)	Recoveries (percent) Spike 1	Spike 2	Spike 3	Amount if Adjusted (ug)
11/8/2007	SC 2	11-tetradecnyl acetate (EE)	4.39	85			5.16
11/8/2007	SC 2	11-tetradecnyl acetate (E)	86.00	87			98.85
11/8/2007	SC 2	11-tetradecnyl acetate (all AI)	90.39				104.01
11/8/2007	SC 23	11-tetradecnyl acetate (EE)	2.33	85			2.74
11/8/2007	SC 23	11-tetradecnyl acetate (E)	23.90	87			27.47
11/8/2007	SC 23	11-tetradecnyl acetate (all AI)	26.23				30.21
11/8/2007	SC 24	11-tetradecnyl acetate (EE)	6.20	85			7.29
11/8/2007	SC 24	11-tetradecnyl acetate (E)	134.00	87			154.02
11/8/2007	SC 24	11-tetradecnyl acetate (all AI)	140.20				161.31
11/8/2007	SC 3	11-tetradecnyl acetate (EE)	2.61	85			3.07
11/8/2007	SC 3	11-tetradecnyl acetate (E)	35.70	87			41.03
11/8/2007	SC 3	11-tetradecnyl acetate (all AI)	38.31				44.10
11/8/2007	SC 4	11-tetradecnyl acetate (EE)	2.27	85			2.67
11/8/2007	SC 4	11-tetradecnyl acetate (E)	16.40	87			18.85
11/8/2007	SC 4	11-tetradecnyl acetate (all AI)	18.67				21.52
11/8/2007	SC 5	11-tetradecnyl acetate (EE)	3.79	85			4.45
11/8/2007	SC 5	11-tetradecnyl acetate (E)	37.60	87			43.21
11/8/2007	SC 5	11-tetradecnyl acetate (all AI)	41.39				47.66
11/8/2007	SC 6	11-tetradecnyl acetate (EE)	4.07	85			4.78
11/8/2007	SC 6	11-tetradecnyl acetate (E)	38.50	87			44.25
11/8/2007	SC 6	11-tetradecnyl acetate (all AI)	42.57				49.03
11/8/2007	SC 7	11-tetradecnyl acetate (EE)	3.11	85			3.65
11/8/2007	SC 7	11-tetradecnyl acetate (E)	34.90	87			40.11
11/8/2007	SC 7	11-tetradecnyl acetate (all AI)	38.01				43.76
11/8/2007	SC 8	11-tetradecnyl acetate (EE)	3.93	85			4.62
11/8/2007	SC 8	11-tetradecnyl acetate (E)	81.30	87			93.44
11/8/2007	SC 8	11-tetradecnyl acetate (all AI)	85.23				98.06
11/8/2007	SC B9	11-tetradecnyl acetate (EE)	3.23	85			3.80
11/8/2007	SC B9	11-tetradecnyl acetate (E)	33.90	87			38.96
11/8/2007	SC B9	11-tetradecnyl acetate (all AI)	37.13				42.76
11/9/2007	PD 16	11-tetradecnyl acetate (EE)	ND	86			
11/9/2007	PD 16	11-tetradecnyl acetate (E)	11.60	111			10.45
11/9/2007	PD 16	11-tetradecnyl acetate (all AI)	11.60				10.45
11/9/2007	PD 22	11-tetradecnyl acetate (EE)	ND	86			
11/9/2007	PD 22	11-tetradecnyl acetate (E)	1.22	111			1.09
11/9/2007	PD 22	11-tetradecnyl acetate (all AI)	1.22				1.09
11/9/2007	PD 26	11-tetradecnyl acetate (EE)	ND	86			
11/9/2007	PD 26	11-tetradecnyl acetate (E)	ND	111			
11/9/2007	PD 26	11-tetradecnyl acetate (all AI)	ND				
11/9/2007	SAL 11	11-tetradecnyl acetate (EE)	5.89	86			6.84
11/9/2007	SAL 11	11-tetradecnyl acetate (E)	32.90	111			29.63
11/9/2007	SAL 11	11-tetradecnyl acetate (all AI)	38.79				36.47
11/9/2007	SAL 12	11-tetradecnyl acetate (EE)	12.50	86			14.53
11/9/2007	SAL 12	11-tetradecnyl acetate (E)	185.00	111			166.66
11/9/2007	SAL 12	11-tetradecnyl acetate (all AI)	197.50				181.19

Deposition results, spike recoveries, and adjustment (10 of 11)

Date	Site	Chemical	Amount Detected (ug)	Recoveries (percent) Spike 1	Spike 2	Spike 3	Amount if Adjusted (ug)
11/9/2007	SAL 13	11-tetradecnyl acetate (EE)	11.10	86			12.90
11/9/2007	SAL 13	11-tetradecnyl acetate (E)	241.00	111			217.11
11/9/2007	SAL 13	11-tetradecnyl acetate (all AI)	252.10				230.01
11/9/2007	SAL 14	11-tetradecnyl acetate (EE)	7.80	86			9.06
11/9/2007	SAL 14	11-tetradecnyl acetate (E)	139.00	111			125.22
11/9/2007	SAL 14	11-tetradecnyl acetate (all AI)	146.80				134.28
11/9/2007	SAL 15	11-tetradecnyl acetate (EE)	5.51	86			6.40
11/9/2007	SAL 15	11-tetradecnyl acetate (E)	88.70	111			79.90
11/9/2007	SAL 15	11-tetradecnyl acetate (all AI)	94.21				86.30
11/9/2007	SC 23	11-tetradecnyl acetate (EE)	5.19	86			6.03
11/9/2007	SC 23	11-tetradecnyl acetate (E)	57.80	111			52.07
11/9/2007	SC 23	11-tetradecnyl acetate (all AI)	62.99				58.10
11/9/2007	SC 3	11-tetradecnyl acetate (EE)	3.57	86			4.15
11/9/2007	SC 3	11-tetradecnyl acetate (E)	39.50	111			35.58
11/9/2007	SC 3	11-tetradecnyl acetate (all AI)	43.07				39.73
11/9/2007	SC 4	11-tetradecnyl acetate (EE)	3.79	86			4.40
11/9/2007	SC 4	11-tetradecnyl acetate (E)	45.20	111			40.72
11/9/2007	SC 4	11-tetradecnyl acetate (all AI)	48.99				45.12
11/9/2007	SC 5	11-tetradecnyl acetate (EE)	5.05	116			4.35
11/9/2007	SC 5	11-tetradecnyl acetate (E)	139.00	73			190.41
11/9/2007	SC 5	11-tetradecnyl acetate (all AI)	144.05				194.76
11/9/2007	SC 6	11-tetradecnyl acetate (EE)	5.06	116			4.36
11/9/2007	SC 6	11-tetradecnyl acetate (E)	155.00	73			212.32
11/9/2007	SC 6	11-tetradecnyl acetate (all AI)	160.06				216.68
11/9/2007	SS C	11-tetradecnyl acetate (EE)	3.95	86			4.59
11/9/2007	SS C	11-tetradecnyl acetate (E)	52.70	111			47.47
11/9/2007	SS C	11-tetradecnyl acetate (all AI)	56.65				52.06
11/9/2007	SS D	11-tetradecnyl acetate (EE)	2.29	86			2.66
11/9/2007	SS D	11-tetradecnyl acetate (E)	18.30	111			16.48
11/9/2007	SS D	11-tetradecnyl acetate (all AI)	20.59				19.14
11/11/2007	PD 16	11-tetradecnyl acetate (EE)	3.02	116			2.60
11/11/2007	PD 16	11-tetradecnyl acetate (E)	76.30	73			104.52
11/11/2007	PD 16	11-tetradecnyl acetate (all AI)	79.32				107.12
11/11/2007	PD 17	11-tetradecnyl acetate (EE)	3.70	116			3.18
11/11/2007	PD 17	11-tetradecnyl acetate (E)	119.00	73			163.01
11/11/2007	PD 17	11-tetradecnyl acetate (all AI)	122.70				166.19
11/11/2007	PD 18	11-tetradecnyl acetate (EE)	4.70	116			4.05
11/11/2007	PD 18	11-tetradecnyl acetate (E)	119.00	73			163.01
11/11/2007	PD 18	11-tetradecnyl acetate (all AI)	123.70				167.06
11/11/2007	PD 19	11-tetradecnyl acetate (EE)	3.40	116			2.93
11/11/2007	PD 19	11-tetradecnyl acetate (E)	101.00	73			138.35
11/11/2007	PD 19	11-tetradecnyl acetate (all AI)	104.40				141.28
11/11/2007	PD 21	11-tetradecnyl acetate (EE)	2.58	116			2.22
11/11/2007	PD 21	11-tetradecnyl acetate (E)	62.90	73			86.16
11/11/2007	PD 21	11-tetradecnyl acetate (all AI)	65.48				88.38

Deposition results, spike recoveries, and adjustment (11 of 11)

Date	Site	Chemical	Amount Detected (ug)	Recoveries (percent) Spike 1	Spike 2	Spike 3	Amount if Adjusted (ug)
11/11/2007	PD 22	11-tetradecnyl acetate (EE)	3.87	116			3.33
11/11/2007	PD 22	11-tetradecnyl acetate (E)	76.90	73			105.34
11/11/2007	PD 22	11-tetradecnyl acetate (all AI)	80.77				108.67
11/11/2007	PD 25	11-tetradecnyl acetate (EE)	4.30	116			3.70
11/11/2007	PD 25	11-tetradecnyl acetate (E)	64.00	73			87.67
11/11/2007	PD 25	11-tetradecnyl acetate (all AI)	68.30				91.37
11/11/2007	PD 26	11-tetradecnyl acetate (EE)	ND	116			
11/11/2007	PD 26	11-tetradecnyl acetate (E)	2.90	73			3.97
11/11/2007	PD 26	11-tetradecnyl acetate (all AI)	2.90				3.97
11/11/2007	SAL 14	11-tetradecnyl acetate (EE)	ND	116			
11/11/2007	SAL 14	11-tetradecnyl acetate (E)	ND	73			
11/11/2007	SAL 14	11-tetradecnyl acetate (all AI)	ND				
11/11/2007	SS C	11-tetradecnyl acetate (EE)	ND	116			
11/11/2007	SS C	11-tetradecnyl acetate (E)	5.10	73			6.98
11/11/2007	SS C	11-tetradecnyl acetate (all AI)	5.10				6.98
11/11/2007	SS D	11-tetradecnyl acetate (EE)	ND	116			
11/11/2007	SS D	11-tetradecnyl acetate (E)	ND	73			
11/11/2007	SS D	11-tetradecnyl acetate (all AI)	ND				

APPENDIX C

Treatment 1. Results of deposition monitoring in Monterey (ug/ft ²)

	Application Date	Site #	Location	Distance to Application Boundary (Feet)	Active Ingredient Concentration (ug/ft²)	Percent Target Rate
Sites Within Application Boundary	9/9/2007	4	Marina		115.84	25.2
	9/9/2007	7	Seaside		115.08	25.0
	9/9/2007	8	Seaside		160.4	34.9
	9/9/2007	9	Seaside		80.19	17.4
	9/9/2007	10	Seaside		4.12	0.9
	9/10/2007	1	Marina		5.11	1.1
	9/10/2007	3	Marina		204.9	44.5
	9/10/2007	6	Seaside		80.28	17.5
	9/10/2007	12	Monterey		195.5	42.5
	9/10/2007	14	Monterey		285.46	62.1
	9/10/2007	17	Pacific Grove		125.61	27.3
	9/10/2007	18	Pacific Grove		59.19	12.9
	9/11/2007	2	Marina		113.32	24.6
Buffer Area	9/10/2007	13	Monterey	246	251.44	54.7
	9/10/2007	15	Monterey	1050	318.17	69.2
	9/11/2007	15	Monterey	875	ND(0.06)*	
Sites Outside Application Boundary	9/10/2007	19	Pacific Grove	475	152.23	33.1
	9/9/2007	1	Marina	500	234.57	51.0
	9/10/2007	11	Monterey	650	150.63	32.7
	9/9/2007	6	Seaside	950	0.38	0.1
	9/10/2007	10	Seaside	1500	67.8	14.7
	9/9/2007	5	Marina	1600	0.65	0.1
	9/10/2007	20	Pacific Grove	1700	33.51	7.3
	9/9/2007	3	Marina	2000	0.36	0.1
	9/10/2007	16	Pacific Grove	2200	10.14	2.2
	9/11/2007	3	Marina	3000	0.78	0.2
	9/11/2007	11	Monterey	5200	ND(0.0003)*	
	9/11/2007	20	Pacific Grove	8200	ND(0.0003)*	
	9/11/2007	16	Pacific Grove	13800	ND(0.0003)*	
	9/11/2007	18	Pacific Grove	13800	ND(0.0003)*	

* Value inside the parenthesis is ½ the detection limit.

Treatment 2. Results of deposition monitoring in Monterey (ug/ft ²) (1 of 2)

	Application Date	Site #	Location	Distance to Application Boundary (Feet)	Active Ingredient Concentration (ug/ft²)	Percent Target Rate
Sites Within Application Boundary	10/24/2007	9	Seaside		69.74	20.3
	10/24/2007	16	Pacific Grove		30.4	8.8
	10/24/2007	17	Pacific Grove		31.34	9.1
	10/24/2007	18	Pacific Grove		113.4	33.0
	10/24/2007	20	Pacific Grove		63.44	18.4
	10/24/2007	26	Monterey		56.87	16.5
	10/24/2007	27	Monterey		44.26	12.9
	10/24/2007	28	Monterey		56.63	16.5
	10/24/2007	29	Monterey		40.78	11.9
	10/24/2007	30	Marina		14	4.1
	10/24/2007	34	Monterey		33.67	9.8
	10/25/2007	5	Marina		ND(0.5)*	
	10/25/2007	6	Seaside		6.16	1.8
	10/25/2007	8	Seaside		2.83	0.8
	10/25/2007	10	Seaside		ND(0.5)*	
	10/25/2007	24	Marina		ND(0.5)*	
	10/26/2007	1	Marina		140.95	41.0
	10/26/2007	2	Marina		85.23	24.8
	10/26/2007	3	Marina		18.3	5.3
	10/26/2007	4	Marina		137.22	39.9
	10/26/2007	5	Marina		17.36	5.0
	10/26/2007	7	Seaside		52.71	15.3
	10/26/2007	9	Seaside		54.8	15.9
	10/26/2007	11	Monterey		81.97	23.8
	10/26/2007	14	Monterey		19.8	5.8
	10/26/2007	19	Pacific Grove		247.2	71.9
	10/26/2007	22	Marina		59.14	17.2
	10/26/2007	25	Marina		89.82	26.1
Buffer Area	10/24/2007	15	Monterey	600	25.41	7.4
	10/24/2007	31	Monterey	300	39.42	11.5
	10/24/2007	32	Monterey	800	50.94	14.8
	10/24/2007	13	Monterey	525	72.12	21.0
	10/25/2007	23	Marina	500	ND(0.50)*	
	10/25/2007	35	Marina	650	ND(0.50)*	
	10/26/2007	13	Monterey	325	ND(0.50)*	
	10/26/2007	15	Monterey	876	5.71	1.7
	10/26/2007	23	Marina	0	142.3	41.4
	10/26/2007	32	Monterey	1000	8.4	2.4
	10/26/2007	33	Pacific Grove	750	22.5	6.5

* Value inside the parenthesis is ½ the detection limit.

Treatment 2. Results of deposition monitoring in Monterey (ug/ft ²) (2 of 2)

	Application Date	Site #	Location	Distance to Application Boundary (Feet)	Active Ingredient Concentration (ug/ft²)	Percent Target Rate
Sites Outside Application Boundary	10/26/2007	24	Marina	150	21.32	6.2
	10/26/2007	16	Pacific Grove	200	21.23	6.2
	10/25/2007	30	Marina	225	ND(0.50)*	
	10/26/2007	17	Pacific Grove	250	1.16	0.3
	10/26/2007	8	Seaside	300	39.51	11.5
	10/26/2007	20	Pacific Grove	328	27.4	8.0
	10/25/2007	3	Marina	350	4.78	1.4
	10/25/2007	7	Seaside	400	38.95	11.3
	10/24/2007	6	Seaside	475	1	0.3
	10/24/2007	11	Monterey	600	47.29	13.7
	10/26/2007	10	Seaside	600	15.5	4.5
	10/25/2007	2	Marina	750	1.01	
	10/26/2007	6	Seaside	775	22.51	6.5
	10/24/2007	19	Pacific Grove	825	41.57	12.1
	10/24/2007	2	Marina	850	2.9	0.8
	10/24/2007	10	Seaside	925	11.5	3.3
	10/24/2007	5	Marina	950	1.27	0.4
	10/24/2007	14	Monterey	975	58.53	17.0
	10/25/2007	4	Marina	1100	8.23	2.4
	10/25/2007	1	Marina	1200	24.99	7.3
	10/24/2007	3	Marina	1500	3.74	1.1
	10/24/2007	35	Marina	1500	ND(0.50)*	
	10/25/2007	9	Seaside	1800	ND(0.50)*	
	10/25/2007	22	Marina	2500	3.12	0.9
	10/24/2007	4	Marina	2600	6.43	1.9
	10/24/2007	33	Pacific Grove	3000	52.5	15.3
	10/25/2007	25	Marina	3300	8.1	2.4
	10/24/2007	8	Seaside	3900	1.21	0.4
	10/24/2007	7	Seaside	4500	ND(0.50)*	
	10/26/2007	35	Marina	4600	3.14	0.9
	10/24/2007	1	Marina	5900	ND(0.50)*	
	10/24/2007	24	Marina	7500	ND(0.50)*	
	10/24/2007	23	Marina	7900	1.27	0.4
	10/25/2007	34	Monterey	11800	ND(0.50)*	
	10/25/2007	13	Monterey	11800	ND(0.50)*	
	10/25/2007	15	Monterey	11800	ND(0.50)*	
	10/24/2007	22	Marina	13500	ND(0.50)*	
	10/25/2007	11	Monterey	13800	ND(0.50)*	
	10/25/2007	14	Monterey	13800	ND(0.50)*	
	10/24/2007	25	Marina	14100	ND(0.50)*	
	10/25/2007	20	Pacific Grove	16100	ND(0.50)*	
	10/25/2007	32	Monterey	16100	ND(0.50)*	
	10/25/2007	33	Pacific Grove	19700	ND(0.50)*	
	10/25/2007	19	Pacific Grove	20300	ND(0.50)*	
	10/25/2007	17	Pacific Grove	20700	ND(0.50)*	
	10/25/2007	16	Pacific Grove	21000	ND(0.50)*	
	10/25/2007	27	Monterey	22300	ND(0.50)*	
	10/25/2007	18	Pacific Grove	23000	ND(0.50)*	

* Value inside the parenthesis is ½ the detection limit.

Treatment 3. Results of deposition monitoring in Santa Cruz/Prunedale/Salinas (ug/ft ²)

	Application Date	Site #	Location	Distance to Application Boundary (Feet)	Active Ingredient Concentration (ug/ft²)	Percent Target Rate
Sites Within Application Boundary	11/8/2007	SC 10	Santa Cruz		41.27	12.0
	11/8/2007	SC 2	Santa Cruz		90.39	26.3
	11/8/2007	SC 24	Santa Cruz		140.2	40.8
	11/8/2007	SC 3	Santa Cruz		38.31	11.1
	11/8/2007	SC 6	Santa Cruz		42.57	12.4
	11/8/2007	SC 7	Santa Cruz		38.01	11.0
	11/8/2007	SC 8	Santa Cruz		85.23	24.8
	11/9/2007	SAL 11	Salinas		38.79	11.3
	11/9/2007	SAL 12	Salinas		197.5	57.4
	11/9/2007	SAL 13	Salinas		252.1	73.3
	11/9/2007	SAL 15	Salinas		94.21	27.4
	11/9/2007	SC 23	Santa Cruz		62.99	18.3
	11/9/2007	SC 3	Santa Cruz		43.07	12.5
	11/9/2007	SC 4	Santa Cruz		48.99	14.2
	11/9/2007	SC 5	Santa Cruz		144.05	41.9
	11/11/2007	PD 16	Prundale		79.32	23.1
	11/11/2007	PD 17	Prundale		122.7	35.7
	11/11/2007	PD 18	Prundale		123.7	36.0
	11/11/2007	PD 19	Prundale		104.4	30.3
	11/11/2007	PD 21	Prundale		65.48	19.0
	11/11/2007	PD 22	Prundale		80.77	23.5
	11/11/2007	PD 25	Prundale		68.3	19.9
	11/11/2007	SAL 14	Salinas		ND(0.50)*	
Buffer Area	11/8/2007	SC B9	Santa Cruz	180	37.13	10.8
	11/11/2007	SS C	Salinas	400	5.1	1.5
	11/9/2007	SS C	Salinas	425	56.65	16.5
	11/8/2007	SC 1	Santa Cruz	775	14.34	4.2
	11/9/2007	SS D	Salinas	850	20.59	6.0
Sites Outside Application Boundary	11/9/2007	SAL 14	Salinas	150	146.8	42.7
	11/9/2007	SC 6	Santa Cruz	250	160.06	46.5
	11/8/2007	SC 23	Santa Cruz	300	26.23	7.6
	11/8/2007	SC 5	Santa Cruz	400	41.39	12.0
	11/9/2007	PD 16	Prundale	500	11.6	3.4
	11/8/2007	SC 4	Santa Cruz	1300	18.67	5.4
	11/11/2007	SS D	Salinas	1900	ND(0.50)*	
	11/9/2007	PD 22	Prundale	3050	1.22	0.4
	11/9/2007	PD 26	Prundale	16100	ND(0.50)*	
	11/11/2007	PD 26	Prundale	17400	2.9	0.8

* Value inside the parenthesis is ½ the detection limit.

Deposition site total concentration (ug/ft ²) at all sites monitored

	Monterey			Santa Cruz	
	Site #	Treatment 1	Treatment 2	Site #	Treatment 3
Treatment Area Sites	01	239.7 *	166.4 *	PD 16	90.9 *
	02	113.3	89.1*	PD 17	122.7
	03	206.0*	26.8*	PD 18	123.7
	04	115.8	151.9*	PD 19	104.4
	05	0.7	19.1*	PD 21	65.5
	06	80.7*	29.7*	PD 22	82.0 *
	07	115.1	92.2*	PD 25	68.3
	08	160.4	43.5*	PD 26	3.4
	09	80.2	125.0*	SAL 11	38.8
	10	71.9*	27.5*	SAL 12	197.5
	11	150.6	129.8*	SAL 13	252.1
	12	195.5		SAL 14	147.3
	14	285.5	78.8	SAL 15	94.2
	16	10.1	52.1*	SC 10	41.3
	17	125.6	33.0*	SC 2	90.4
	18	59.2*	113.9	SC 23	89.2 *
	19	152.2	289.3	SC 24	140.2
	20	33.5	91.3*	SC 3	81.4 *
	22		62.8*	SC 4	67.7 *
	24		22.3	SC 5	185.4 *
	25		98.4*	SC 6	202.6 *
	26		56.9	SC 7	38.0
	27		44.8	SC 8	85.2
	28		56.6		
	29		40.8		
	30		14.5		
	34		34.2		
Minium		0.7	14.5		3.4
Maximum		285.5	289.3		252.1
Average		122.0	76.6		104.9
Buffer Area Sites	13	251.4	72.6	SC 1	14.3
	15	318.2	31.1*	SC B9	37.1
	23		144.1*	SS C	61.8 *
	31		39.4	SS D	21.1
	32		59.8*		
	33		75.5		
	35		ND		
Minium		251.4	ND		14.3
Maximum		318.2	144.1		61.8
Average		284.8	60.44		33.6

* Total of multiple samples with detections from the same treatment.

APPENDIX D

Flight Lines, Deposition and Windrose Figures

The brown lines indicate the location of the flight lines where the pheromones were sprayed. The green circles and numbers indicate the amount of deposition in /ft^2. Wind data are presented in the form of wind rose diagrams. Each spoke on the wind rose represents the direction, speed and duration of the wind during the application. The direction of the spoke is the direction the wind is blowing to, the length is the time in percent, and the color represents the speed. The weather station locations are identified as Met116 for Monterey County and Met104 for Santa Cruz. The weather stations are managed by the Department of Water Resources' California Irrigation Management Information System (CIMIS). These data illustrates how locations considerable distance away from the application can have low-level detections.

Figure 1. Treatment 1 Night 1 Monterey Peninsula

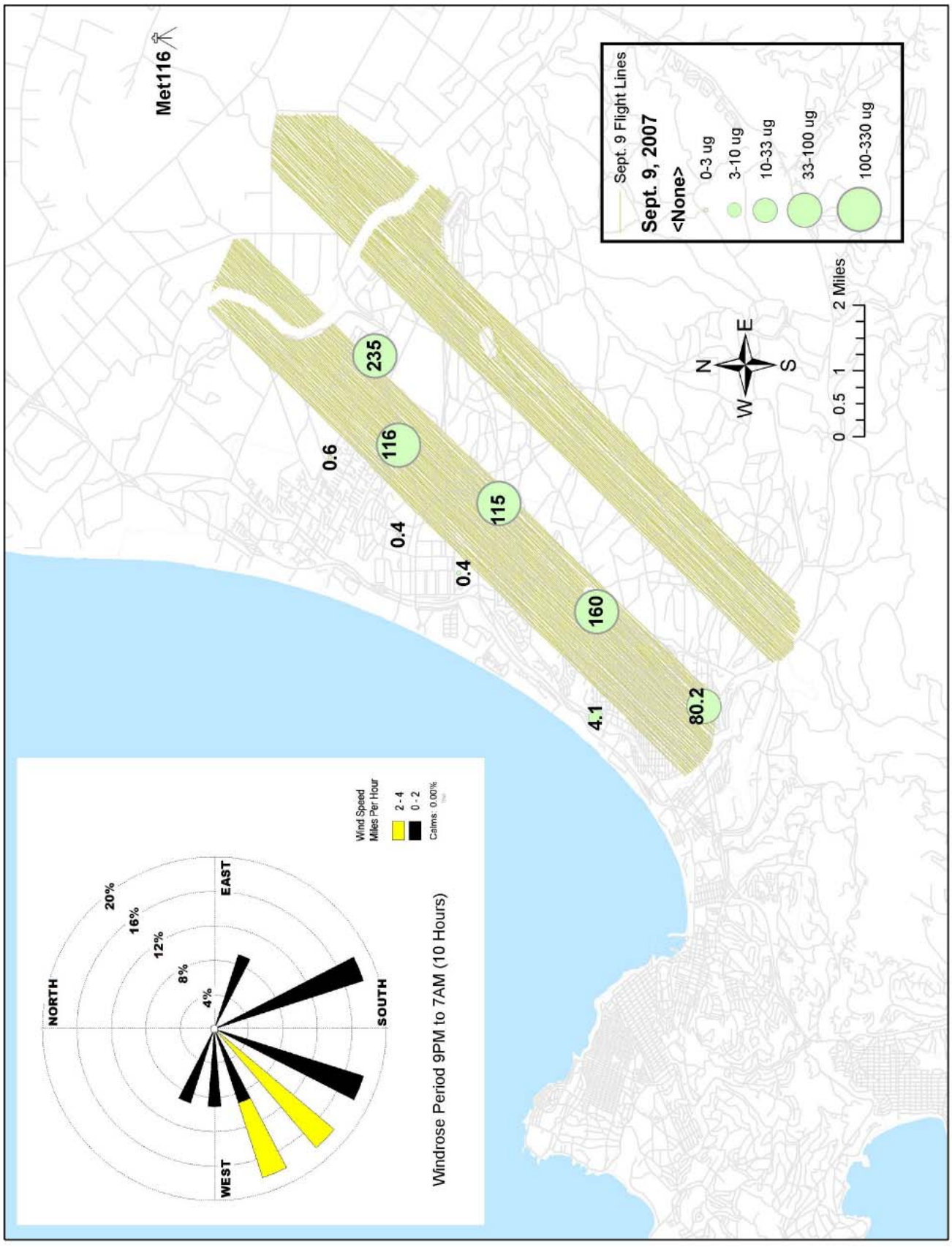


Figure2. Treatment 1 Night 2 Monterey Peninsula

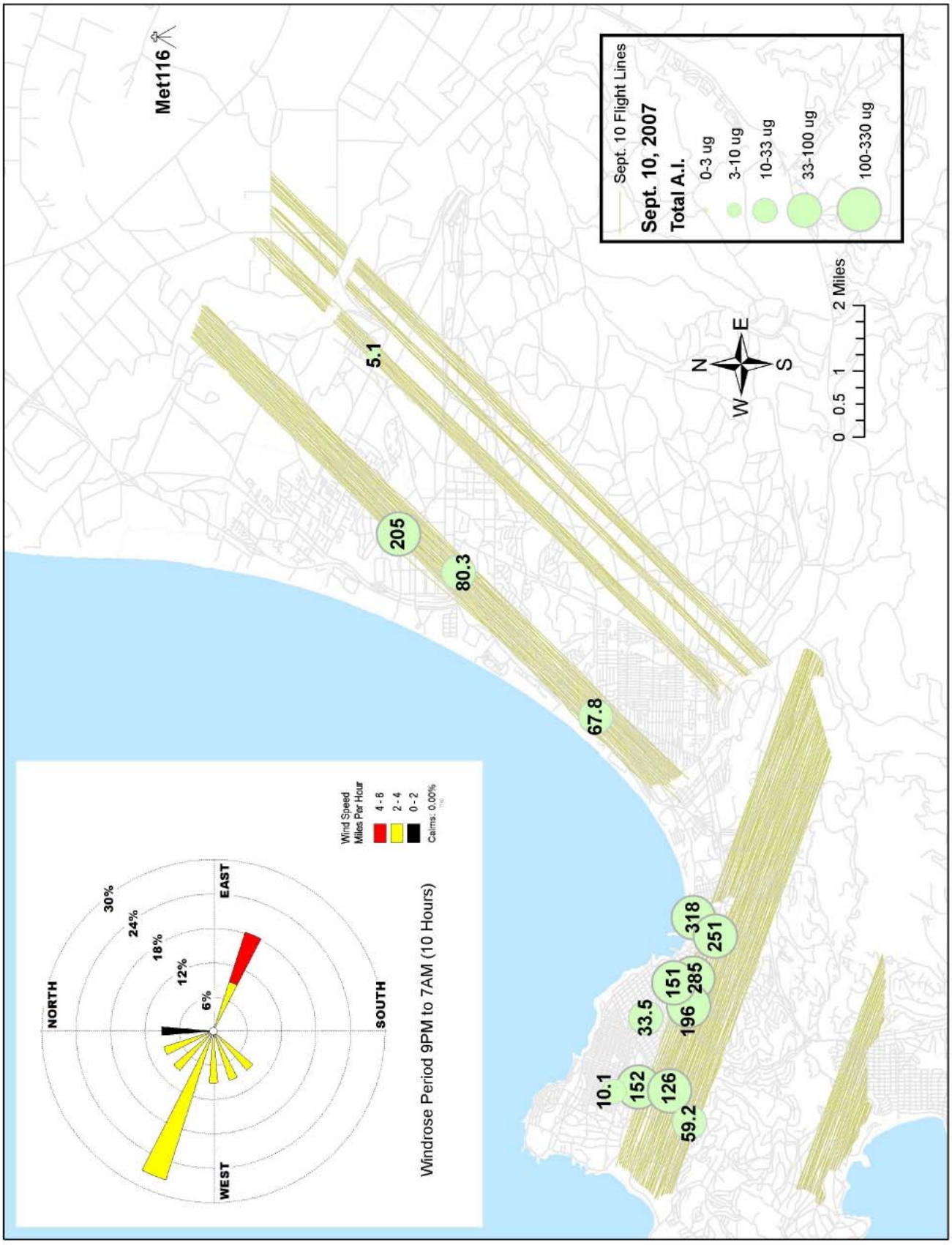


Figure 3. Treatment 1 Night 3 Monterey Peninsula

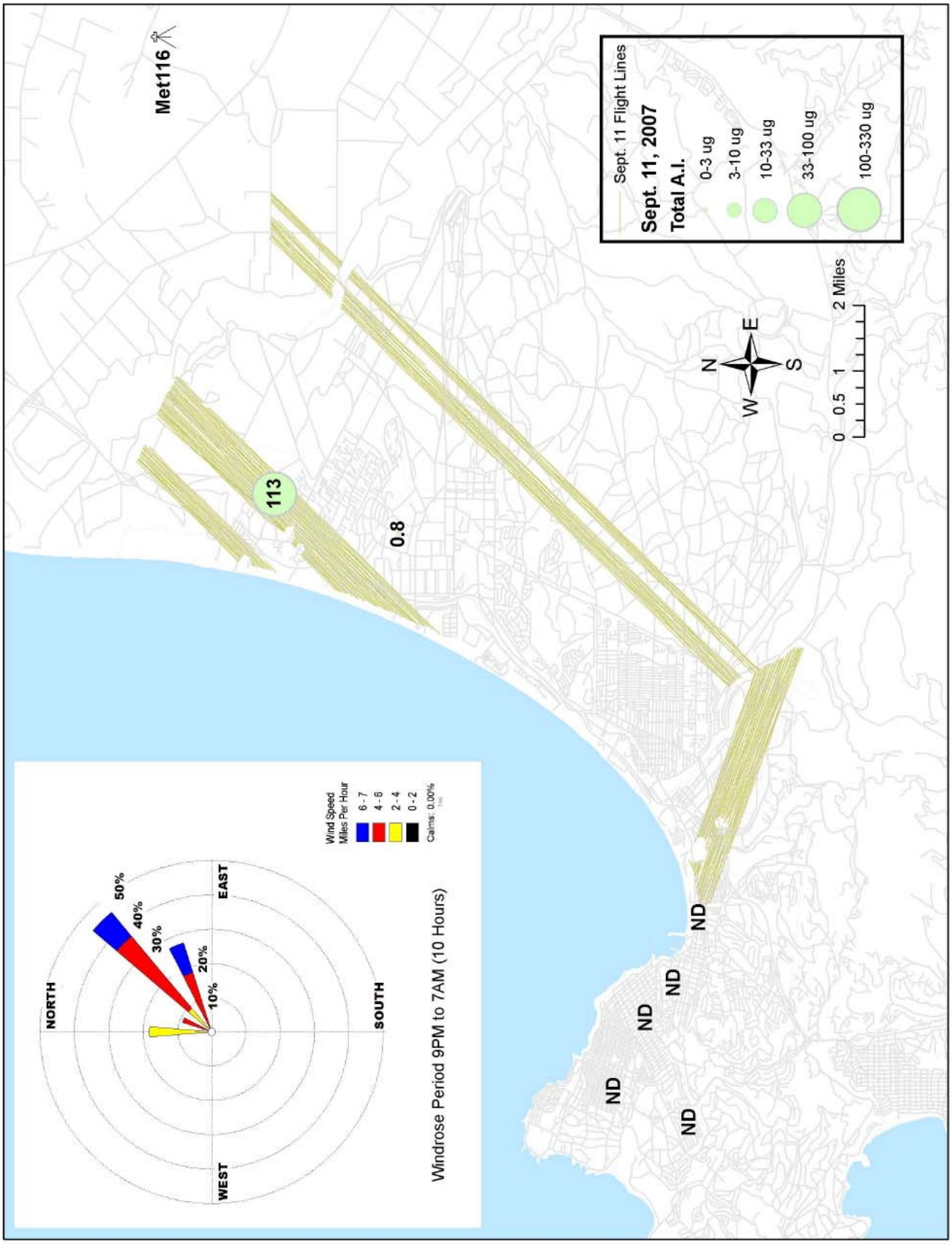


Figure 4. Treatment 2 Night 1 Monterey Peninsula

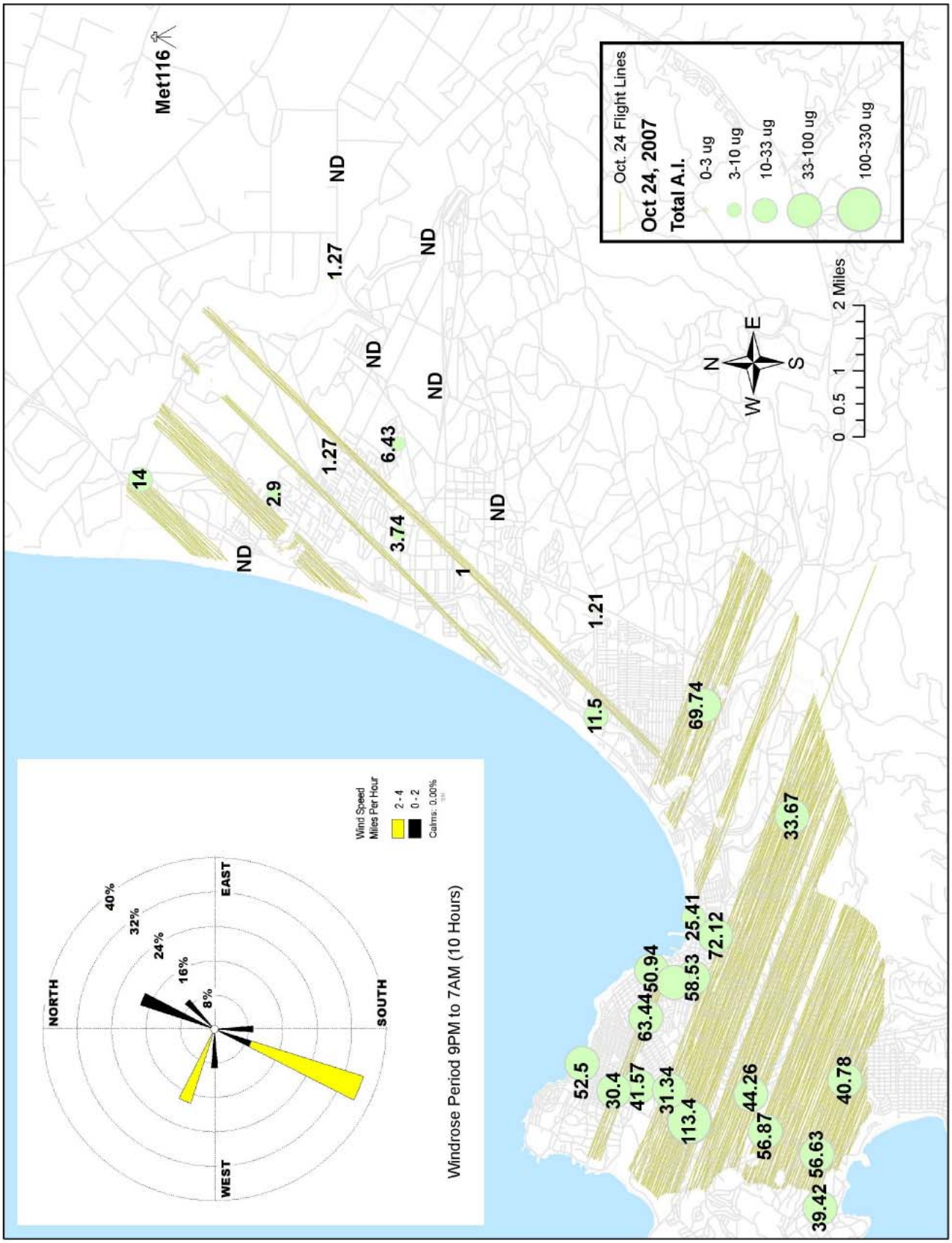


Figure 5. Treatment 2 Night 2 Monterey Peninsula

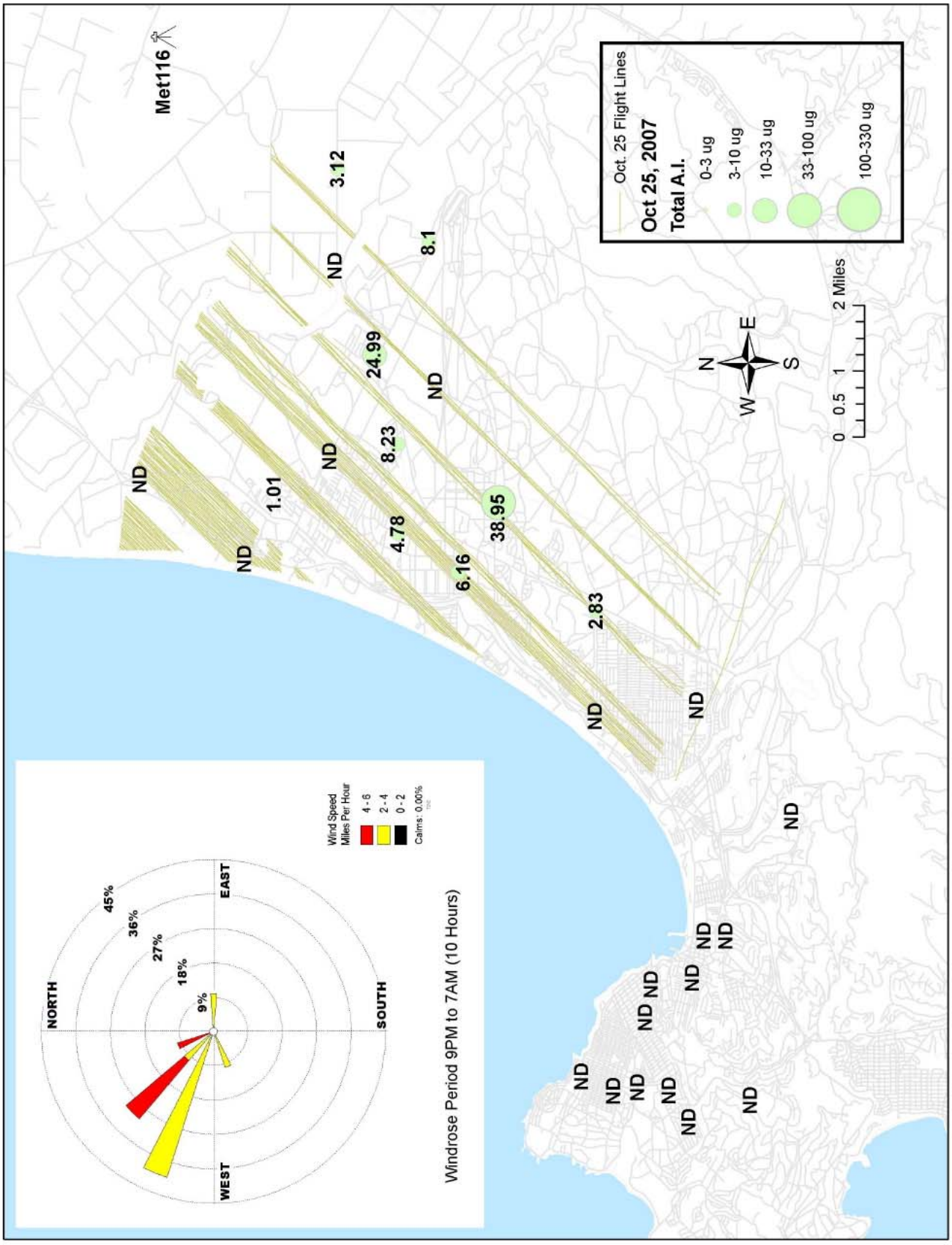


Figure 6. Treatment 2 Night 3 Monterey Peninsula

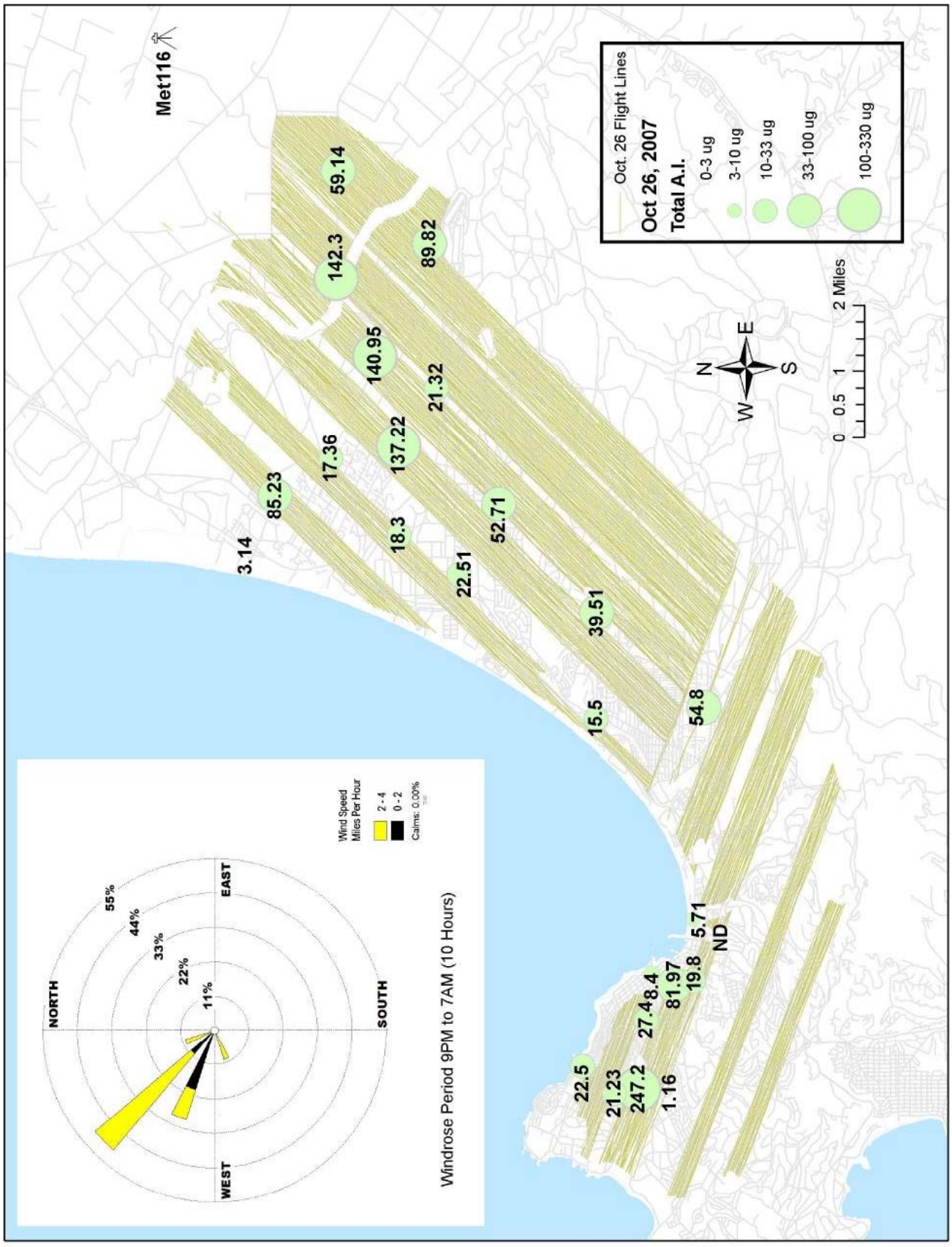


Figure 7. Treatment 3 Night 1 Santa Cruz

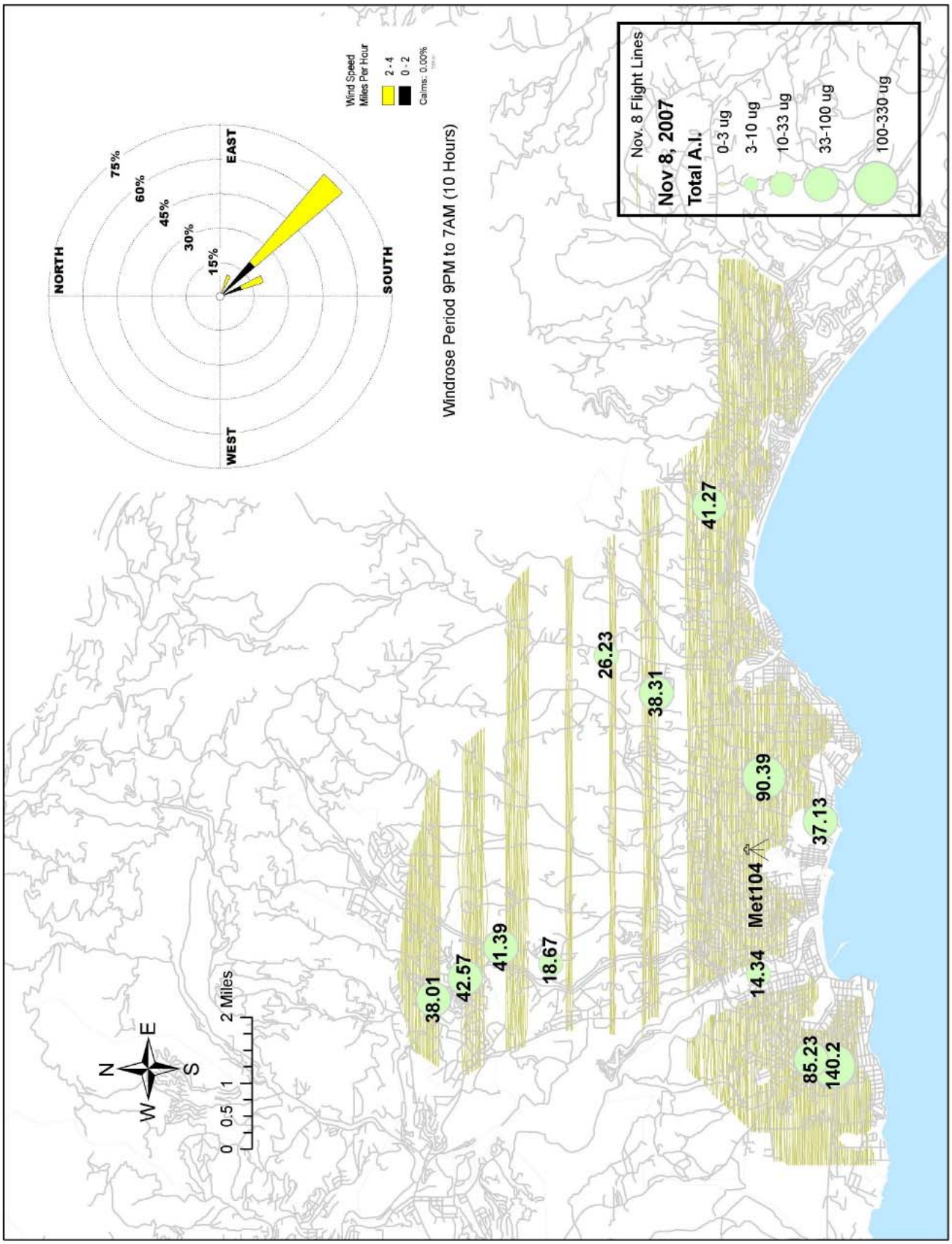


Figure 8. Treatment 3 Night 2 Santa Cruz

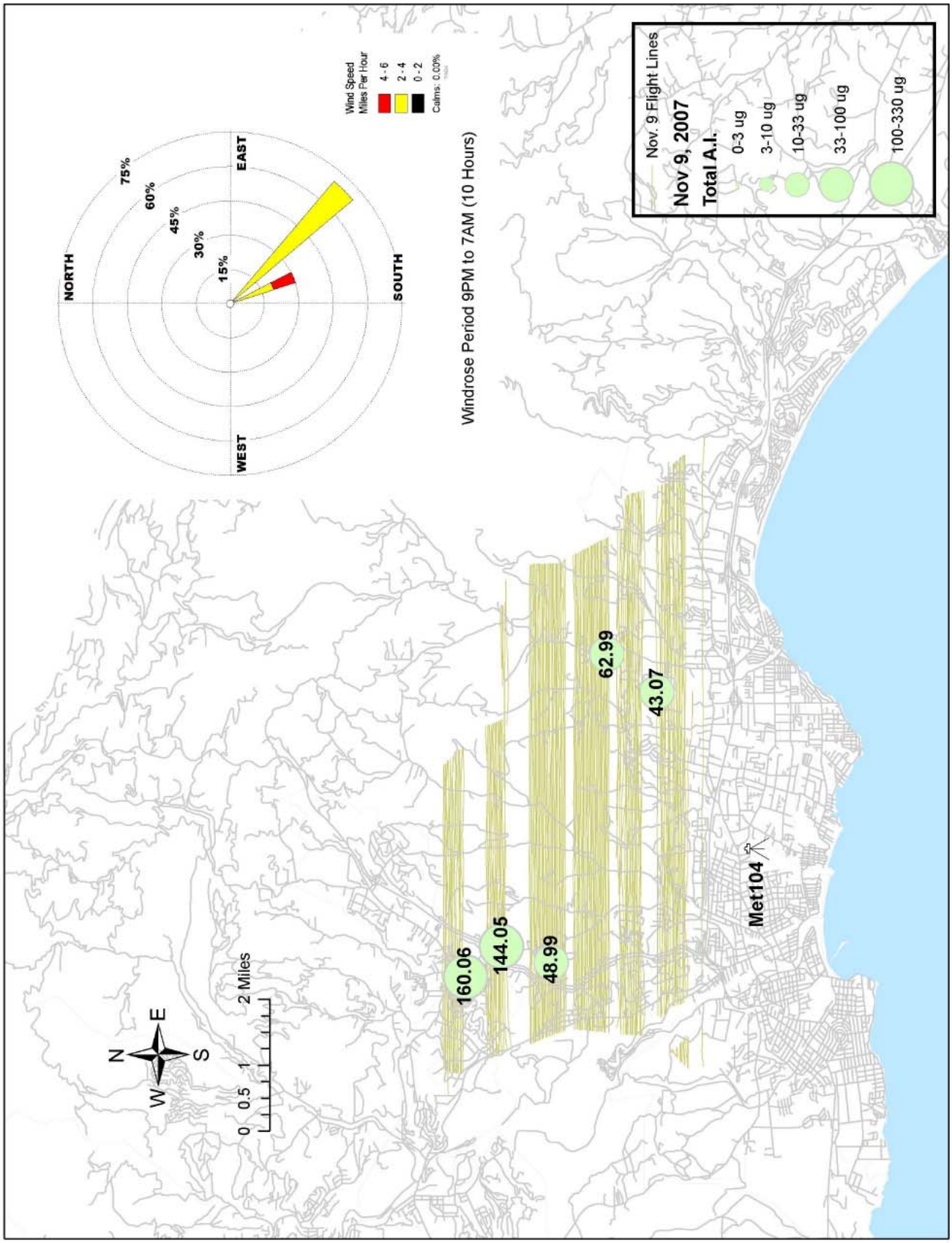


Figure 9. Treatment 3 Night 2 Prunedale Salinas

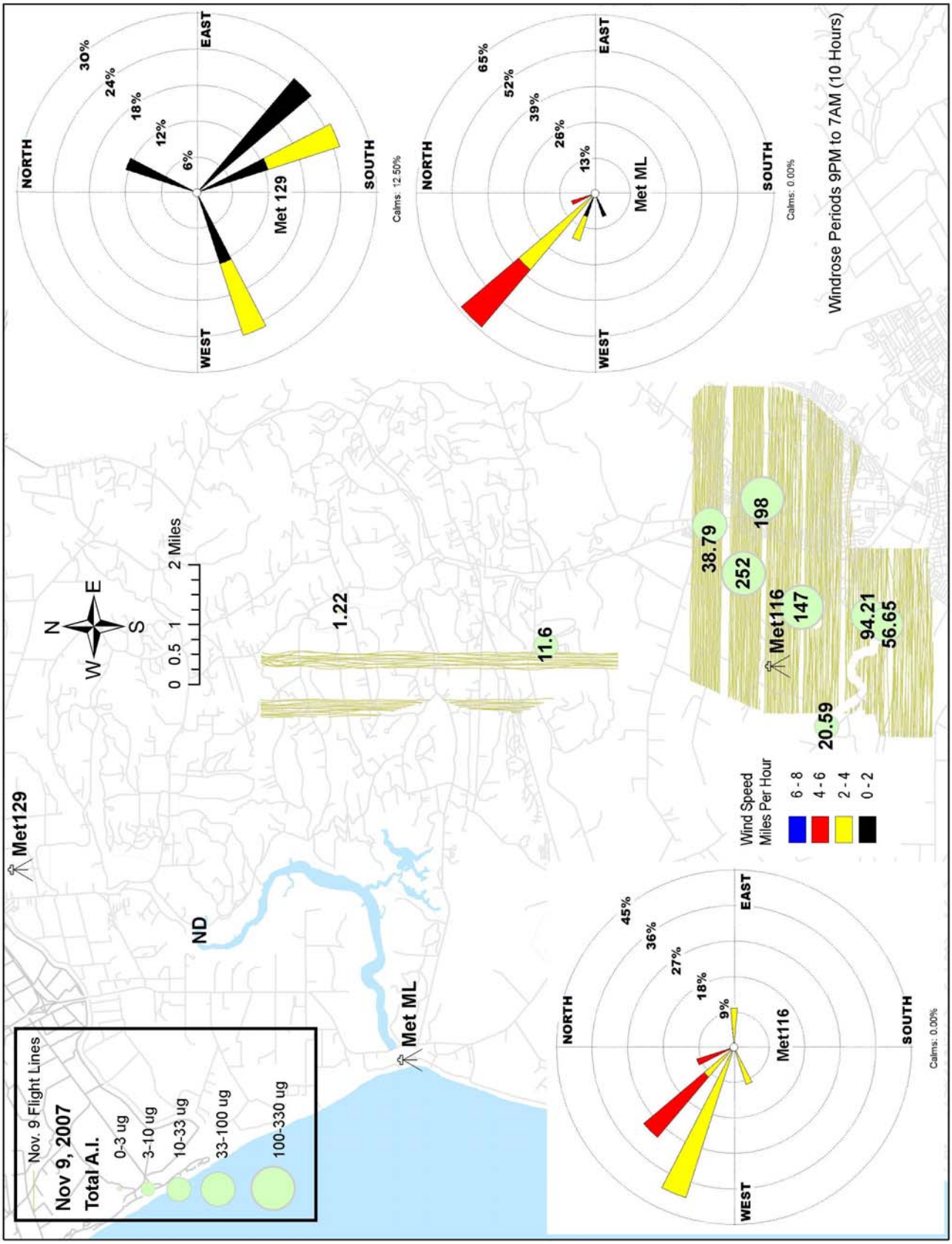
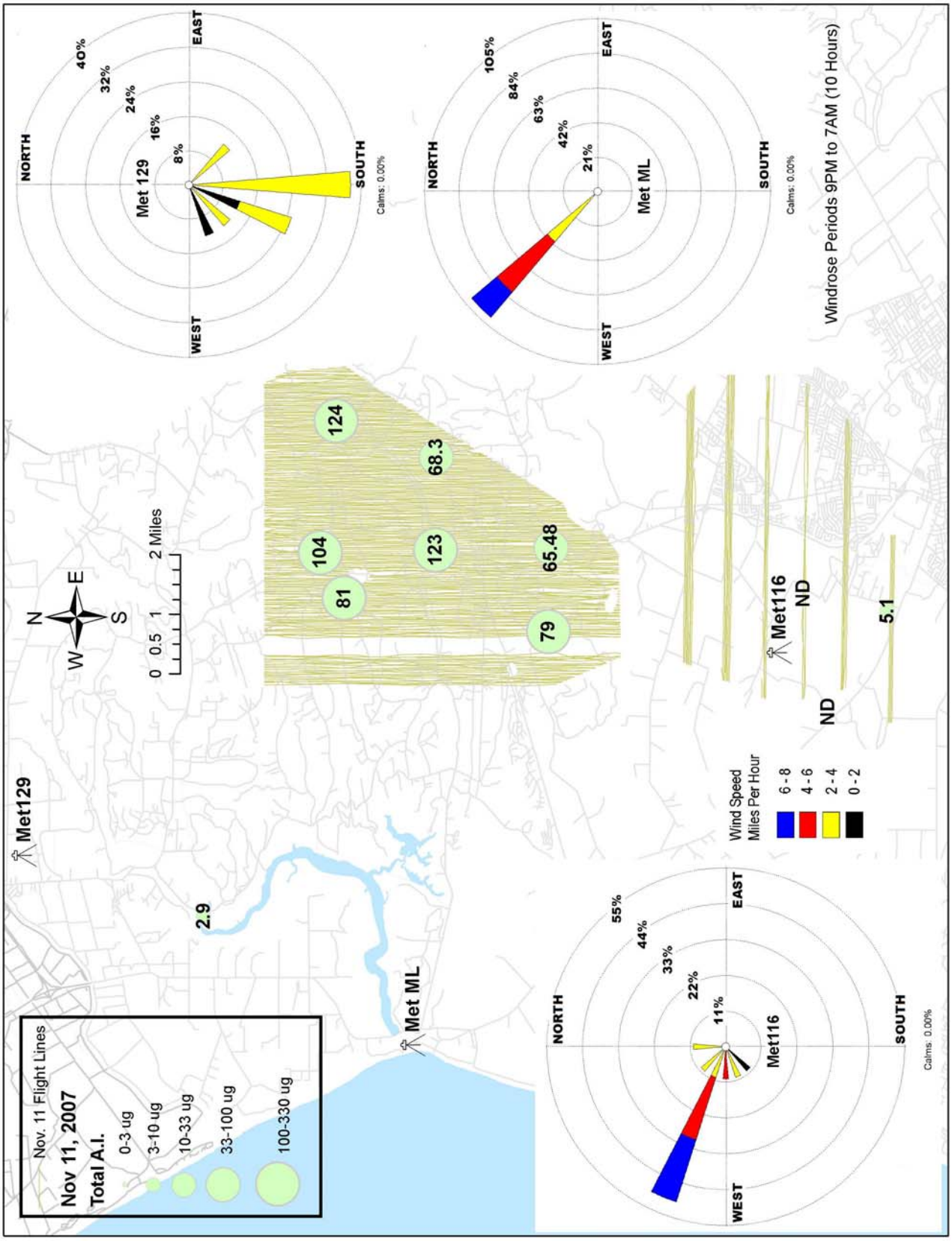


Figure 10. Treatment 3 Night 3 Prunedale Salinas



APPENDIX E

MSD Laboratory Methods and Storage Stability

Mass Deposition Sheets Chemical Analysis Method Summary

Reagents and Equipment

Hexane
Pheromone standards
Wide mouth quart jars lined with aluminum foil
Mechanical shaker
Rotary evaporator
Nitrogen evaporator
vortex vibrating mixer for test tubes
Mass deposition sheets ("Kimbies" - Kimberly Clark Corp.)
test tubes, glass stoppered, 15mL
Flasks, 250mL

Sample extraction

Place folded kimbie in a quart jar. Add 200mL hexane
Cap the jar with alumimun foil and lids
Check for leakage.
Shake on mechanical shaker for 60 minutes at approximately 170 rpm

Sample analysis

Analyze the samples by GC/MSD

If the chromatographic analysis shows the the analyte(s) are below the lower level of the standard curve, concentrate the samples

Place 100mL aliquortof the sample into a 250mL boiling flask and rotavap at 30°C to approximately 2-5 mL's
Transfer extract to 15mL tube and rinse flask 2 times with hexane and transfer rinses into tube
Place tube on a nitrogen evaporator and concentrate to a final volume of 1.0mL. Vortex the extract and transfer to an autosampler vial.

If the chromatographic analysis shows the the analyte(s) are above the upper level of the standard curve, dilute the samples as necessary

Operate the GC/MS in SIM (selected ion monitoring) mode monitoring the following ions:

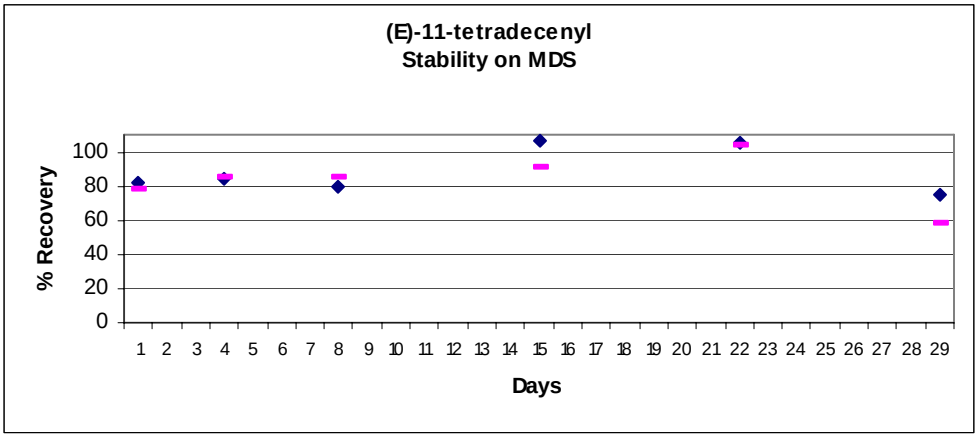
55, 68, 82 and 96 using a dwell time of 100msec.

Results of Tetradecenyl (LBAM Pheromone) Mass Deposition Sheets Storage Stability Study

* spike level 50 /sheet; QC spike level 50 /sheet spiked on the day of extraction

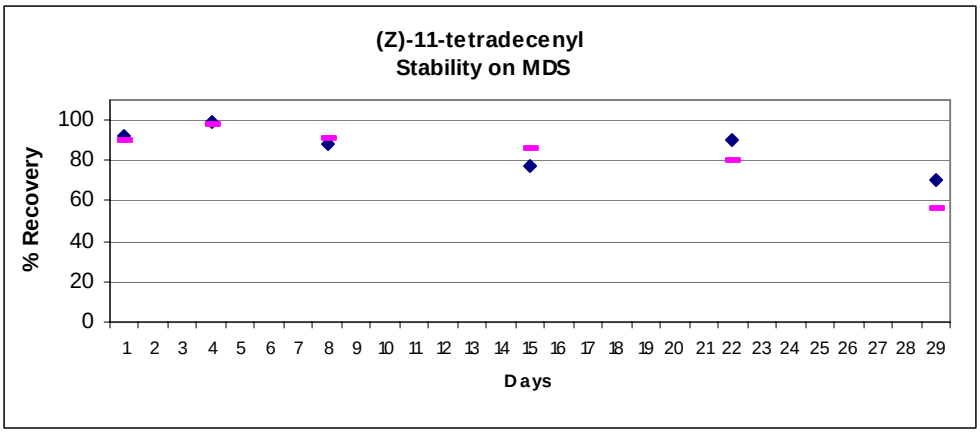
(E)-11-tetradecenyl

Day	Rep #1 Recovery	Rep #2 Recovery	Rep #3 Recovery	Mean Recovery	QC
0	76.5	90.3	77.2	81.3	78.8
3	84.6	85.7	82.3	84.2	84.9
7	80.8	78.3	78	79.0	85.3
14	74.2	85.3	159.0	106.2	91.3
21	115.5	98.3	101.9	105.2	104.6
28	87.0	65.8	72.0	74.9	58.0



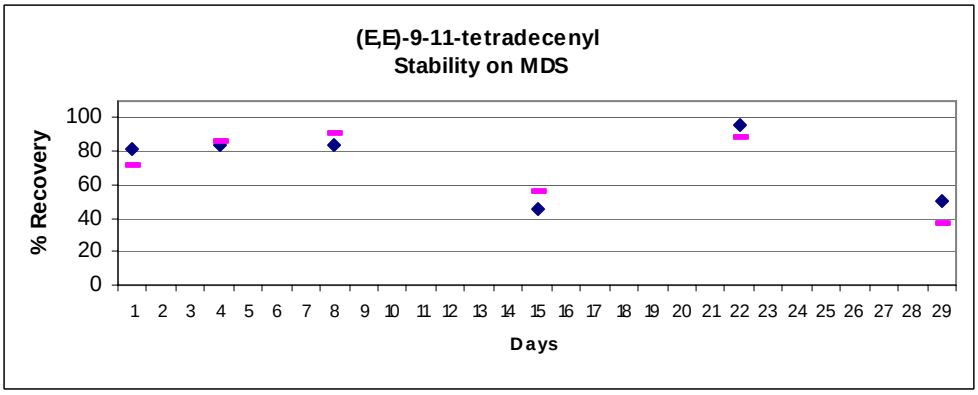
(Z)-11-tetradecenyl

Day	Rep #1 Recovery	Rep #2 Recovery	Rep #3 Recovery	Mean Recovery	QC
0	89	102.2	85.7	92.3	90.6
3	95.3	101.8	99.4	98.8	98.5
7	85.3	87.0	93.0	88.4	91.2
14	74.5	84.7	74.0	77.7	86.1
21	91.1	90.0	88.7	89.9	80.7
28	77.1	59.8	73.7	70.2	56.1



(E,E)-9-11-tetradecenyl

Day	Rep #1 Recovery	Rep #2 Recovery	Rep #3 Recovery	Mean Recovery	QC
0	78.5	88.8	75.6	81.0	71.6
3	81.5	84	83.8	83.1	86.6
7	85.9	80.3	85.3	83.8	91.2
14	44.4	52.7	38.8	45.3	56.6
21	101.2	92.6	93.9	95.9	88.6
28	59.6	43.3	48.9	50.6	37.3



Chemist:Holly Cheuk and Debbie Cordova
Date:1/7/08